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Local Funding Options for Wisconsin Urban Transit Systems

July 1982

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FOREWORD

Responding to recent discussions and proposals about the phase-out of Federal transit operating assistance, many jurisdictions have been examining the ways transit services are funded within their borders. These reviews need to consider the way services are currently funded, as well as the potential of funding mechanisms which are not yet being used.

The Wisconsin Department of Transportation has concluded a particularly interesting analysis of local funding mechanisms in their state. The Wisconsin study, summarized in this report, reviews approaches to system funding based on fare policy changes, as well as local sales taxes, motor vehicle related taxes, and other innovative funding options. It also includes a brief review of local transit subsidy sources in other states.

Although the analysis in this report is specific to Wisconsin, the approach taken may provide ideas to state or local governments faced with similar problems. In this light, the U. S. Department of Transportation and the American Association of State Highway and Transportation Officials are cooperating to make this important state analysis product available to other jurisdictions.

We hope you find this study to be useful in formulating your own policies and programs on financing of transit services.

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1982

*Waukesha includes Waukesha County and Waukesha City transit systems.

CHAPTER I

INTRODUCTION

KEY FINDINGS

1. The combination of transit fares and local subsidy funded about 73 percent of Wisconsin urban transit system operating expenses in 1975 compared to 54 percent in 1982. The difference has been made up via state and federal subsidies.
2. Assuming that the state will continue to fund 30 percent of operating costs and that the federal government will phase out operating assistance by 1985, local funding will have to cover 70 percent of these costs in all transit systems by that time.
3. Currently, most transit fares are assessed within a flat fare structure and cover about 43 percent of operating costs.
4. Most local transit subsidies in the state come from property tax and state shared revenues and fund about 11 percent of operating costs. Property tax levy increases in 1981 in most communities with transit systems were well below increases allowed under state statute, indicating that a higher percentage of costs could currently be funded locally from the property tax.
5. Though, on the average, the state's urban transit systems could expect a three percent loss in ridership for every flat ten percent increase in fares, small urban systems could expect to lose riders at a somewhat higher rate.

6. Graduating transit fares by trip distance in the state's larger systems, through zone charges, may improve both equity among riders and system efficiency. These improvements would result from the trip price more accurately reflecting the cost of providing the service. This kind of fare structure may be limited, however, to larger systems with radial routes.
7. In cases where peak period costs per passenger mile are higher than off-peak costs, and most peak period trips are for work purposes, premium peak period fares could equitably increase system revenues with minimal losses in ridership. This is due mainly to peak period work trip demand being generally less sensitive to fare increases than off-peak demand.
8.. Fare prepayment schemes, when properly implemented, may increase ridership and system revenue as well as improve operating efficiency, system cash flow and accounting procedures.
9. The imposition of a local sales tax by counties where urban transit systems exist could substantially benefit the municipalities supporting transit systems. Excluding Milwaukee, over $21 million could have been added to the general funds of transit municipalities from this source in 1980 (over $35.5 million including Milwaukee).
10. Counties and municipalities supporting urban transit systems could have collected over $13 million in local vehicle registration fees in FY 1980-81.

11. Both the local sales tax and the local vehicle registration fee options appear to possess features which make them politically unpopular, since neither option is currently employed in the state. In both cases, measures could be enacted to make these taxes more feasible.
12. Progressive local transit tax options could be potentially more suitable for implementation if they could be imposed by municipal transit authroities. Legislation would be required to provide the tax option and to enable transit authorities to levy the tax.
13. Borrowing or sale/lease back mechanisms are likely to be used in Wisconsin only for exceptionally large capital projects.
14. New industrial, school, or other special transit services--in order to be considered new funding sources, must be priced to produce net revenues for transit systems.

OVERVIEW

In Wisconsin, as in many other states, urban transit operating costs are largely met with funds from four sources: federal, state and local subsidies, and transit system users fees. The U. S. Department of Transportation, in line with Reagan Administration policy, has proposed the complete phase out of the federal share of operations funding by 1985. Under current statute, the state maintains a partnership with local transit systems by paying 30 percent of operating costs. Given these federal and state level funding characteristics and the likelihood of continued cost trends, local decision makers will be confronted with increasingly difficult choices regarding system funding and service levels as greater percentages of operating costs will have to be met locally. Many Wisconsin transit systems have already started to address these difficult funding choices. Thirteen of the state's urban bus systems increased fares in 1981. Four of these thirteen and six others are planning additional increases in 1982. This report, in an effort to aid local decision makers, examines transit system funding options which could be considered at the local level.

Under current statutes, there are three general categories of action that can be taken locally to increase operating revenues: transit fare policies, subsidies funded by local taxes or charges, and nontraditional options.

Fare policies, with the exception of fares for the elderly and handicapped, are currently set locally without state requirements or restrictions. Those considered in Chapter II are:

1. Flat fare policies,
2. Distance-graduated fare policies,
3. Time-graduated fare policies, and
4. Fare prepayment and discount policies.

Though not an exhaustive list, these policy options seem most feasible and provide for reasonably clear assessments of efficiency and equity impacts of implementation. Each policy is evaluated in terms of feasibility, efficiency and equity and, where sufficient data are available, financial impacts on specific transit systems are estimated. It is clear in the evaluation that any single fare policy selected for implementation will usually represent a trade-off of one particularly desirable characteristic, such as efficiency, for another, such as feasibility. It is hoped that through an examination of these trade-offs, policy decisions at the local level regarding fare policies can be aided.

The second major category of local transit finance options, subsidies funded with local tax revenues, is considered in Chapter III of this report. Statutory local tax options considered in this chapter are:

1. Local property tax assessments,
2. Local sales tax, and
3. Motor vehicle registration fee.

A hotel room tax, which currently produces over $4 million in revenue in the state, is primarily a tax on nonresidents and not considered a subsidy source for transit service in this report.

Local subsidy sources in other states are briefly reviewed in order to place Wiscolnsin options into perspective and also to help form a basis for future legislative recommendations concerning local option taxation.

The four major criteria used in the evaluation of these taxes and fees are feasibility, equity, yield, and ease of administration. As with transit fares, any single option will usually represent a trade-off of desired characteristics.

Chapter IV examines a few of the many less traditional transit funding options which have been implemented to varying degrees by transit systems across the country. These options include:

1. Borrowing mechanisms,
2. Benefit charges, and
3. Service contracts or agreements.

Due to the limited application of most of the funding techniques mentioned in Chapter IV, any transit system considering one of the techniques should carefully study the implications of its use in light of the transit system's and community's unique characteristics.

It is unlikely that any Wisconsin transit system would be able to completely finance its share of operating expenses from the fare box. It is equally unlikely that any locality would choose to meet this expense totally from its local budget. Selecting the ideal blend of fare box revenue, local subsidy, and other funds is a complex policy issue made even more complex by the range of fare policies, taxes, and other financing mechanisms which may be locally employed. The various options analyzed in this paper are not meant as recommendations by the

Department of Transportation for Wisconsin communities dealing with these finance issues. The Department recognizes that the resolution of fare and subsidy issues is extremely complex, involving many other local factors than those considered here. This report, therefore, is intended only as a guide which may be used in the local decision making process.

CURRENT LOCAL TRANSIT FUNDING

Though changing, current transit operations funding in Wisconsin is largely the product of state operating assistance and, more recently, federal operating assistance. Federal and state aids have provided some compensation for revenue lost or foregone through low fares and flat fare structures. These types of fares encouraged and maintained ridership, a major objective of the subsidy programs. As a result, fares do not generally reflect the varying costs of providing service to different system users and fare increases have been far outstripped by increases in operating costs. Burdens on local taxpayers have also been minimized since the bulk of operating deficits have been met with state and federal funding.

In 1982, federal and state operating assistance to Wisconsin urban transit systems will amount to about $43 million. Together, these sources will fund about 46 percent of urban transit system operating expenses. At the same time, transit fares should amount to over $40 million and local subsidies over $10 million. These local sources of transit system income will fund about 54 percent of total operating expenses in 1982 (Table 1), while in 1975, local transit income funded

TABLE 1

WISCONSIN URBAN TRANSIT SYSTEMS
OPERATING REVENUES AND LOCAL OPERATING ASSISTANCE
AS PERCENTAGES OF OPERATING EXPENSES: PROJECTED 1982

(a) System	(b) Operating Revenues ($000)	(c) Operating Expenses ($000)	(d) Local Operating Assistance ($000)	(e) Local Assistance / Operating Expenses (%)	(f) Operating Revenues / Operating Expenses (%)	(g) (Local Ass't. + Operating Revenues) / Operating Expenses (%)
Antigo (T)	16	24	-0-	0.0	66.7	66.7
Appleton	481	1,625	79	4.9	29.6	34.5
Ashland	5	24	5	20.8	20.8	41.7
Beloit	124	657	145	22.1	18.9	40.9
Eau Claire	335	1,134	170	15.0	29.5	44.5
Fond du Lac	132	594	111	18.7	22.2	40.9
Green Bay	715	2,049	36	1.8	34.9	36.7
Hartford (T)	11	49	9	18.4	22.4	40.8
Janesville	300	978	148	15.1	30.7	45.8
Kenosha	401	1,732	98	5.7	23.2	28.8
La Crosse	480	1,456	77	5.3	33.0	38.3
Madison	5,022	13,248	2,824	21.3	37.9	59.2
Manitowoc	106	388	60	15.5	27.3	42.8
Marshfield (T)	31	82	7	8.5	37.8	46.3
Merrill	32	140	26	18.6	22.9	41.4
Milwaukee Co.	29,898	61,319	5,580	9.1	48.8	57.9
Oshkosh	339	1,222	75	6.1	27.7	33.9
Racine	622	1,964	19	1.0	31.7	32.6
Rhinelander (T)	84	111	-0-	0.0	75.7	75.7
Rice Lake	30	122	21	17.2	24.6	41.8
Ripon (T)	18	39	1	2.6	46.2	48.7
Sheboygan	442	1,355	207	15.3	32.6	47.9
Stevens Point	46	315	74	23.5	14.6	38.1
Stoughton (T)	13	37	4	10.8	35.1	45.9
Superior	99	535	106	19.8	18.5	38.3
Watertown	34	183	38	20.8	18.6	39.3
Waukesha City	75	699	148	21.2	10.7	31.9
Waukesha Co.	423	1,092	57	5.2	38.7	44.0
Wausau	265	688	22	3.2	38.5	41.7
Wisconsin Rapids (T)	58	96	-0-	0.0	60.4	60.4
TOTAL	40,781	93,955	10,148	Average 10.8	43.4	54.2

(T) indicates shared ride taxi

Numbers may not sum due to rounding

SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

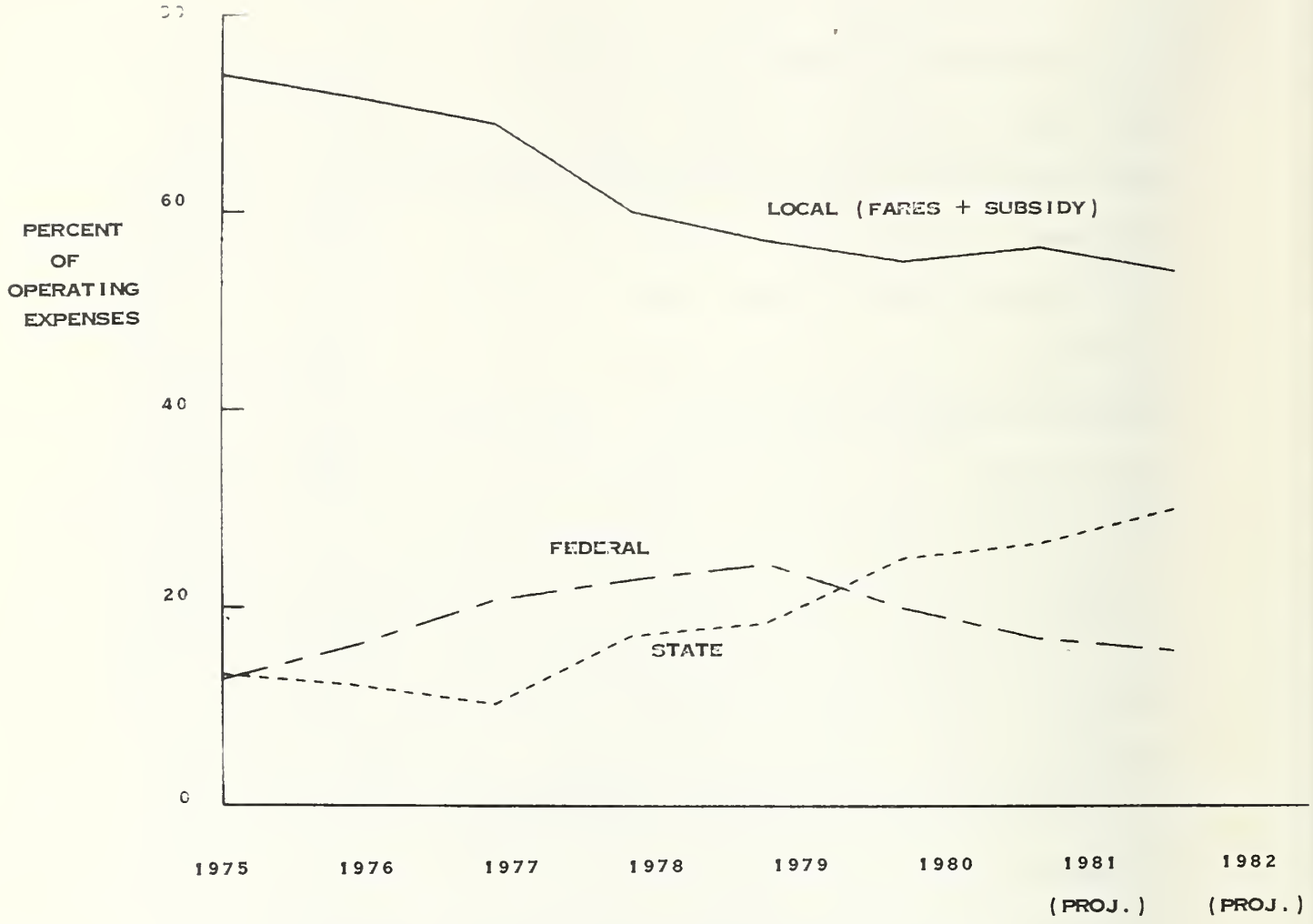
over 73 percent of these expenses (Figure 1). Due to the proposed phase out of federal operating subsidies, the portion of operating expenses met locally will probably have to increase from its current level back to about the 1975-1976 level within the next three to four years in order to maintain service levels.

Fare policy will probably play a major role in the increase of the local share of operations funding. Currently, the average cash adult fare in Wisconsin (not including Waukesha County) is about 40 cents and the average fare per rider is about 33 cents. Most urban transit systems in the state provide a discount fare to children or students and, in compliance with state and federal law, to elderly and handicapped riders during all or part of the service day. Most fare structures are based on a flat fare, i.e., a single base fare for all adult riders regardless of trip length or time of ride. The only exceptions to this type of structure are the zone fares charged to interzone riders in Appleton, Eau Claire, Madison, Manitowoc, Oshkosh, Sheboygan, and Wausau. In Milwaukee, premium fares are charged for Freeway Flyer and Stadium Special services. A variety of fares apply to the commuter services offered by Wisconsin Coach Lines in Waukesha County. These fares are based on distance between fixed pick up and destination points. Presently, no Wisconsin transit system varies its regular base fare for peak and off-peak period service.

Local subsidies for urban transit operations in Wisconsin are all financed from local general funds. In 1980, over $8.5 million, or nearly 12 percent of operating expenses, was paid to the state's 22

FIGURE 1

WISCONSIN URBAN TRANSIT SYSTEMS
PERCENT OF OPERATING FUNDS BY SOURCE: 1975-1982



SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

urban transit systems from local general funds. The major sources of these funds were the local property tax and various amounts of state and federal shared revenues. Property tax levy increases in 1981 in all communities with transit systems, with the exceptions of Milwaukee County, Waukesha County, Fond du Lac, and Kenosha, were considerably less than increases allowed under state statute. This indicates that those communities which are below their levy limit could, if necessary, increase local transit funding without resorting to other options discussed in this report.*

Besides the property tax, three other sources of local revenue could be tapped for transit system finance. These are the room tax, local sales tax, and local vehicle registration fee. Currently, only the room tax is used by some local governments in Wisconsin and, in those cases, the proceeds are not earmarked for transit.

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*Source: Wisconsin Department of Revenue, Bureau of Systems and Data Processing, June, 1982.

CHAPTER II

FARE POLICY OPTIONS

INTRODUCTION

This chapter examines current and potential fare policies in Wisconsin, their rationales, and impacts. Current fare structures in the state are largely based on objectives of simplicity in collection and administration, ridership maximization, and income redistribution toward low income riders. Though these objectives may be wholly or partially met under present conditions, alternate fare structures exist which may also provide certain net gains in economic and social benefits. Such structures considered here are distance-graduated fares, time-graduated fares, and fare prepayment. Local decision makers may wish to consider these possible benefits when reviewing current fare policies and considering fare increases or fare structure alterations.

CURRENT FARE POLICIES IN WISCONSIN

As previously noted, most urban bus systems in Wisconsin charge a flat fare to regular adult transit users with discounts given to special groups of users, i.e., children, students, elderly riders, and handicapped riders. Most systems also provide some discount to users who buy tickets, tokens or passes (see Table 2). For tickets and tokens, the discount off the regular adult fare ranges from 5.7 percent in

TABLE 2

WISCONSIN URBAN TRANSIT SYSTEM FARE STRUCUTRES:
JANUARY, 1982

System	Adult Cash Fare	Child Fare	Student Fare	Elderly and Handicapped Fare	Ticket Discount	Token Discount	Pass Discount*
Antigo (T)	$2.50	$2.50	None	$1.25	No	No	No
Appleton	.35	None	.25	.15	No	Yes	No
Ashland	.50	Free	.40	.25	No	No	No
Beloit	.35	None	.35	.15	No	No	Student
Eau Claire	.50	.35	.35	.25	No	Yes	No
Fond du Lac	.50	.40	None	.25	No	Yes	Yes
Green Bay	.40	Free	.30	.20	No	Yes	Yes
Hartford (T)	1.00	.50	None	.50	No	No	No
Janesville	.50	.50	.50	.25	Yes	No	No
Kenosha	.35	Free	.30	.15	No	No	Yes
La Crosse	.50	Free	.30	.25	No	Yes	No
Madison	.55	Free	.30	.25	No	No	Yes
Manitowoc	.50	Free	.35	.25	No	Yes	Yes
Marshfield (T)	1.00	1.00	None	.50	No	No	No
Merrill	.40	None	.40	.20	No	No	Student*
Milwaukee Co.	.75	.35	.50	.35	Yes	No	Yes
Oshkosh	.35	.15	None	.15	No	Yes	No
Racine	.25	.25	None	.10	No	No	No Discount
Rhinelander (T)	2.50	None	None	1.25	No	No	No
Rice Lake	.40	None	.25	.20	Yes	No	No
Ripon (T)	1.50	1.50	None	.75	No	No	No
Sheboygan	.40	.30	.35	.20	No	Yes	Yes
Stevens Point	.40	.20	.20	.20	No	No	Yes
Stoughton (T)	1.00	1.00	None	.50	No	No	No
Superior	.50	.40	.40	.25	No	No	No Discount
Watertown	.40	.25	None	.20	No	No	No
Waukesha City	.50	.25	.35	.25	No	No	No Discount
Waukesha Co. +	1.55	.80	None	.78	Yes	No	No
Wausau	.35	Free	.25	.15	No	No	No
Wisconsin Rapids (T)	2.00	2.00	None	1.50	No	No	No

* Based on 40 rides per month or 10 rides per week.

(T) Indicates shared ride taxi

\+ Waukesha County fare is for one-way between downtown Waukesha and downtown Milwaukee.

SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Appleton and Janesville to 30 percent in Manitowoc. Weekly or monthly passes, since they can be used for an indefinite number of rides, can provide significant discounts to users. If it is assumed that a pass is used for 10 rides per week or 40 rides per month on the average, then pass discounts off regular adult fares range from no discount in Kenosha, Milwaukee, Racine, and Waukesha (city) to 40 percent in Manitowoc.

In addition to varying fares by user group or method of payment, nine transit systems account for trip distance either through graduated fares or transfer charges (Table 3). The additional charges are generally imposed to compensate for costs associated with the greater than average distances involved in travel to or from neighboring communities while the reduced charges generally reflect shorter than average trips, e.g., downtown shuttles.

It has become generally accepted that transit fares, collected under the fare structures previously described, cannot be expected to cover the total costs of operating transit systems. In 1980, system revenue covered only 42.6 percent of operating expenses incurred by Wisconsin urban transit systems (Table 1). This percentage represents an historical low and can be attributed to several factors. Certainly, one of the most important factors has been the rapid increase in operating costs--especially labor and fuel. Fare increases, however, have not only failed to keep pace with these cost increases but have also failed to keep pace with the more general rate of inflation. The worsening revenue to expense trend, therefore, can be seen as a "double-edged sword" with rapid cost increases on one edge and low, flat fare policies on the other.

TABLE 3

WISCONSIN URBAN BUS SYSTEMS
DISTANCE BASED FARES: 1982

TRANSIT SYSTEM	DISTANCE CHARGE
Appleton	Zone charge (10¢ E&H, 15¢ adult & student) for service outside Appleton.
Eau Claire	Premium fare of double the base fare for trips to or from Chippewa Falls
Madison	Reduced fare for downtown shuttle and University service; 20¢ premium for Middleton service.
Manitowoc	10¢ charge for transfers to and from Two Rivers.
Milwaukee	Reduced fare for downtown shuttle; 25¢ premium for Freeway Flyer and Stadium Special.
Oshkosh	Distance graduated fares from Oshkosh to and between Winnebago, Neenah, and Menasha.
Sheboygan	Zone charges for service to Kohler (5¢) and Sheboygan Falls (10¢)
Waukesha County	Fares based on distance between points in Waukesha and Milwaukee Counties.
Wausau	Zone charge (15¢ adult, 10¢ E&H, 25¢ student) for service to Rothschild.

SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Transit fare structures, which include low fares relative to costs, can generally be justified by the argument that transit provides external benefits to the entire community. This being the case, system users should not be expected to pay all of the system's costs since they do not reap all of the benefits. The primary beneficiaries of transit, other than riders, would include merchants and real estate owners near bus routes, motorists who benefit from reduced highway congestion, and neighborhoods who benefit from reduced air and noise pollution. Society in general is also said to benefit as a result of land and energy savings which result from transit usage. Quantification of many of these external benefits is difficult as noted in the draft Wisconsin DOT study, *The Net Quantifiable Benefits of Urban Mass Transit In Wisconsin in 1980*. That study estimates that urban transit benefits exceeded costs by over $21 million in 1980.

Many transit program decision makers at all levels of government also consider low fares a means of income redistribution. This social equity goal is meant to increase the general welfare of the disadvantaged by providing them with mobility at a low price. In a survey conducted aboard Madison Metro buses in 1980[1] it was shown that riders with household incomes below $5,000 comprised the largest single segment of total riders--18 percent. The mean household income of riders in Madison, however, exceeds $14,000--approximately the national average. Nationally, workers with household incomes of under $10,000 comprise the largest proportion of transit riders of any income group--52.2 percent. Seven to nine percent of the nation's transit riders, however, have household incomes exceeding $25,000.[2] It appears, therefore, that public transit is not completely effective in the redistribution of income.

The goal inherent in local, state, and federal transit programs is maximization of system ridership. This goal is related to both external benefits and social equity. Low fares, which in the past could be tolerated at the local level given state and federal deficit financing, have been considered major stimulants to system patronage. Ridership in Wisconsin's urban transit systems has increased concurrently with state and federal operating subsidies, but other variables such as the price and availability of motor fuels may have also contributed significantly to this trend.

In addition to relatively low fares, the predominant flat fare structure is also considered by many transit managers and planners as a stimulant to patronage. It is argued that the simplicity of a single fare for virtually all services within a single system encourages riders who may otherwise forego riding the bus because of complex zone or peak fare structures. Fare collection and accounting are also greatly simplified for the transit operator. As noted in subsequent sections of this report, flat fares are coming under increasing criticism because they tend to favor the more affluent riders who, as a group, ride longer distances and tend to ride during peak periods.

With the proposed phase out of federal operating assistance, the shift to operating cost sharing at the state level and the increasing competition for local tax dollars, most Wisconsin transit systems have acted to, or are planning to, increase fares. To varying degrees, recovery of operating costs is becoming a system goal along with the other goals discussed associated with low flat fares. The following four sections of this chapter examine some options which may help facilitate fare policy decisions at the local level.

FARE POLICY OPTION I--INCREASE FARES WITHIN EXISTING FARE STRUCTURE

Increases in fares while retaining existing fare structures appears to be the most popular method of attempting to increase transit system revenues in Wisconsin. Though any fare increase is likely to be unpopular with transit system users, increasing fares without tampering with the fare structure is probably the most immediately acceptable method to users as well as to system management and others concerned with the provision of transit services. With the retention of a flat fare structure, the only change confronting the rider is an increase in price. Payment remains very simple as does collection with only marginal costs involved in implementation and administration.

Flat fare increases, however, will probably involve another kind of cost to the transit system in terms of ridership. Over the years, studies have shown that, on the average, a one percent change in fare for an urban line-haul bus operation will result in a change in ridership of about one-third of one percent.[3] This relationship can be expressed as a simple elasticity of -0.33 (the minus sign indicates that the change in ridership is in the opposite direction of the fare change). This elasticity--or shrinkage ratio--implies that transit demand is relatively inelastic since a one percent change in fare would cause less than a one percent change in patronage. It must be remembered, however, that an elasticity of -0.33 is only a rule of thumb and that actual elasticities which could be applied to Wisconsin transit system fare changes may vary significantly from system to system. Generally, fare increases will have less impact in the following situations:

- In large cities
- In rapid rail transit systems
- Where driving and parking costs are high
- During peak hours of service

Fare increases will have a greater impact in these situations:

- Small urban areas
- Areas of sparse or infrequent transit service
- Feeder service to line-haul service
- Where driving and parking costs are low
- During off-peak and weekend hours of service[4]

Recognizing the wide variations in fare elasticities, depending on community size and service characteristics, Table 4 presents a range of passenger and revenue impacts which could be expected in each Wisconsin transit community as the result of a 20 to 35 percent fare increase. The elasticities used for calculating the low, mid and high ridership impacts for Milwaukee and Madison represent the range of elasticities collected in 25 cities elsewhere in the country of similar size to those Wisconsin cities over a period of several years from 1948 to 1978.[5] Specifically, these elasticities are:

	High Impact	Mid Impact	Low Impact
Milwaukee:	-0.42	-0.30	-0.18
Madison:	-0.47	-0.35	-0.23

TABLE 4

ESTIMATES OF IMPACTS OF 20 TO 35 PERCENT FARE INCREASES
ON WISCONSIN URBAN BUS TRANSIT SYSTEMS, PROJECTED 1982 (000)

Transit System[1]	1982 Revenue Passengers	1982 Passenger Revenue	Old Fare (Actual)	New Fare[2]	High Impact[3]		Mid Impact[3]		Low Impact[3]	
					Passengers	Revenue	Passengers	Revenue	Passengers	Revenue
Appleton	1,528	$ 481	$ .35	$ .45	1,126	$ 456	1,340	$ 543	1,392	$ 564
Ashland	11	5	.50	.65	8	5	10	6	10	6
Beloit	390	124	.35	.45	287	118	342	140	355	146
Eau Claire	970	335	.50	.65	702	315	845	379	880	395
Fond du Lac	395	132	.50	.65	286	125	344	150	358	156
Green Bay	2,310	715	.40	.50	1,779	694	2,062	804	2,131	831
Janesville	644	300	.50	.65	466	282	561	339	584	353
Kenosha	1,375	401	.35	.45	1,013	379	1,206	451	1,253	469
La Crosse	1,271	480	.50	.65	920	454	1,107	547	1,153	570
Madison	12,547	5,022	.55	.70	10,940	5,575	11,355	5,787	11,755	5,990
Manitowoc-Two Rivers	380	106	.50	.65	275	100	331	120	345	126
Merrill	82	32	.40	.50	63	31	73	36	76	37
Milwaukee Co.	59,970	29,898	.75	1.00	51,574	34,536	53,973	36,162	56,372	37,769
Oshkosh	1,161	339	.35	.45	856	320	1,018	381	1,058	396
Racine	2,573	662	.25	.30	2,100	611	2,352	684	2,413	702
Rice Lake	90	30	.40	.50	69	29	80	33	83	34
Sheboygan	1,387	442	.40	.50	1,068	427	1,238	495	1,280	512
Stevens Point	164	46	.40	.50	126	44	146	51	151	53
Superior	271	99	.50	.65	196	93	236	112	246	117
Watertown	113	34	.40	.50	87	33	101	38	104	39
Waukesha (City)	178	75	.50	.65	129	70	155	85	161	88
Wausau	1,019	265	.35	.45	751	250	894	298	928	309

[1]Note that only regular route urban bus systems are included because the elasticities used were computed from urban bus systems only.

[2]New fares are highest five cent increments with 20 to 35 percent increase range.

[3]Elasticity ranges (high impact to low impact):

Milwaukee: -0.42, -0.30, -0.18
Madison: -0.47, -0.35, -0.23
All Others: -0.92, -0.43, -0.31

SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Though considerable research has been devoted to studying the effects of fare changes in larger cities the size of Milwaukee and Madison, very little has been done in smaller transit communities. It is generally accepted that, due to the shorter distances involved and the generally lesser amount of service available in these smaller communities, transit demand is probably more sensitive to fare changes than in larger cities. A study of 13 small urban areas in Iowa between 1955 and 1965 supports this belief.[6] It was found that elasticities were related to the quantity of transit service, measured in revenue miles per capita, available in the smaller cities. In some cases, where service quantities were small, elasticities exceeded unity by significant amounts (any fare increase would actually result in lost revenue). Since the number of revenue miles per capita in the smaller Wisconsin systems exceed those extreme cases in Iowa, the average elasticity for the entire 13 Iowa cities is used as the high impact elasticity here. The mid and low estimates are based on the average elasticity of 39 cities studied with populations of less than 100,000.[7] Specifically, these elasticities are:

High Impact:	-0.92
Mid Impact:	-0.43
Low Impact:	-0.31

The base fares in Table 4 are actual 1982 fares, whereas ridership and revenue data are from Wisconsin DOT estimates for 1982. For this reason, systems will not be able to directly apply the estimated impacts

to future fare changes, but may instead note the magnitude and direction of ridership and revenue changes. In Milwaukee and Madison, a 20 to 35 percent fare hike could be expected to result in a 5 to 13 percent loss in ridership with a concurrent 11 to 25 percent increase in revenues. In the smaller transit systems, such a fare hike would probably result in a 6 to 30 percent loss in riders and revenues ranging from 7 percent less to 20 percent greater than pre-fare change levels. In this group, the smaller systems with low levels of service could probably expect impacts approaching the high estimates while larger system impacts would tend toward the low to mid estimates.

The estimates in Table 4, since they are based on broad averages, represent second best projections. The best method for estimating system impacts from fare increases would be to use system specific data collected following previous fare changes. If such information is available and the previous fare increase was relatively small, then a simple formula may be used to derive a "shrinkage ratio." This formula is:

$$E = \frac{\Delta Q/Q_1}{\Delta F/F_1}$$

Where:

E = elasticity or shrinkage ratio

ΔQ = change in ridership

Q = pre-fare change ridership

ΔF = change in fare

F = pre-change fare

The resultant ratio may then be applied to a proposed moderate fare increase to project the change in ridership. The formula to use in this case is:

$$\%\Delta Q = E(\%\Delta F)$$

Local decision makers should consider efficiency and equity impacts of fare structure and level changes as well as gross ridership and revenue impacts. It should be recognized that various segments of the system's riders impose differing costs on the transit system. Long distance riders, riders from less densely settled parts of the service area, and peak period riders in certain situations probably impose greater costs on the system than do riders who board and depart in the core area of the city during off-peak hours. If all riders pay the same fare, as they do with a flat fare structure, then the fare structure is not economically efficient. Such a structure encourages rides by those who pay less than the cost of service--long distance riders and possibly peak period riders--and discourages rides by those who must pay more than the cost of service--generally short distance and off-peak period riders. There are also equity problems involved with a flat fare structure in that low income riders are more likely to live near the center of the city where the price of a transit ride is relatively high per mile (assuming shorter trips) compared to the price per mile paid by a long-distance suburban commuter who is traveling to the center of the city. It is possible that low income riders are actually cross-subsidizing the more affluent system users. Local decision makers must, therefore, decide whether the simplicity involved in the payment and collection of a flat fare is worth the inherent inefficiencies and inequities of such a fare structure.

Another important consideration is the actual composition of the group of riders who are priced off of the buses as a result of a fare increase and, related to this, the economic impact on those who continue to ride. There is considerable evidence showing that low income, elderly, and autoless rider demand is less sensitive to fare changes than is other user demand.[8] Though this seems intuitively obvious, it should be considered in any analysis preceding a fare change since these groups are likely to experience the most severe impacts of a fare increase. The extent to which social welfare objectives are assigned to a city's transit system will determine the relative importance of this factor in the decision making process.

FARE POLICY OPTION II--DISTANCE-GRADUATED FARE STRUCTURE

As noted in the previous section, charging a single flat fare for all rides, regardless of trip length, may be economically inefficient and inequitable. Research has shown that flat fares may cause a reverse transfer of income among bus riders--from poor to affluent--and contribute to a less than efficient allocation of transportation resources. In Albany, New York, it was found that a rider taking a trip of less than 10 minutes pays an average fare of 32.7 cents per mile, while a rider traveling for 70 minutes pays only 3 cents per mile.[9] Using the measure of revenue per passenger mile over cost per passenger mile (RPM/CPM), Robert Cervero found similar situations in Los Angeles, San Diego, and Oakland.[10] The mean ratios for trips of under 6 miles in these 3 cities ranged from 0.492 to 0.637, i.e., between 49 and 64 percent of costs per passenger mile were returned as fare payments by

those making the shorter trips. Ratios for trips over 6 miles, however, ranged from 0.122 to 0.183--a recovery of only 12 to 19 percent of costs per passenger mile. In a finer analysis of these study results, it was found that those traveling an average of one mile returned twice as much of the cost of their trip through fares than did those traveling two miles. In these two cases--one and two mile trips--fares covered from 110 to 460 percent of costs incurred providing those particular trips. These findings, if generally applicable, indicate that short distance trip takers not only cover their costs, but also cross-subsidize longer trip takers. It follows, therefore, that federal, state, and local subsidy dollars generally provide more aid to those making the longest transit trips than to other riders.

It is not certain how directly the New York or California findings can be applied to transit systems in Wisconsin, but it seems likely that similar inequities would exist. Another area of concern in this regard is the effect of fares approaching one dollar on short distance trip makers. If the higher fares significantly exceed the perceived total benefits of shorter trips, and those trips are consequently not taken, then the flat fare structure is inefficient. In light of these possible problems, transit system policy makers may wish to consider fare structure modifications which would alleviate these equity and efficiency problems.

One such structure modification, already used in various forms in Wisconsin, is a zone system. Once widely used, zones fell from favor as public subsidies began to pay system deficits and the problems associated with paying and collecting zone premiums outweighed the economic benefits of those premiums. Besides problems with payment and collection of

zone fares, there are questions about the applicability at such fare structures in many of the state's urban areas. Primarily, these questions concern city size, transit route structure, relative costs of different kinds of transit services, and the spatial distribution of socioeconomic groups in the cities.

The first question, that of city size, is foremost in this study since most of the state's transit systems exist in cities with populations of under 100,000. Though little information is available regarding average trip lengths in these smaller cities, it may be assumed that they would be considerably less than those in Madison where transit trips average just over three miles.[11] Outside of trips on services for which distance premiums are charged (see page 13), trip lengths on the smaller systems' regular routes probably do not vary over a wide enough range to make fare graduation generally practical. There is no widely accepted standard or rule of thumb regarding the optimum route length for zone charges, so local transit planners must carefully assess system specific cost, ridership, and trip characteristics in any distance fare proposal evaluation.

Another factor to be considered in the evaluation of a zone fare structure is the transit system's route structure. Systems with predominantly radial routes, focusing on the center of the city, would find zone layout relatively simple. In these cases, concentric circles centered on the downtown transfer zone would probably serve as reasonable first-cut distance zone boundaries, with only slight adjustments needed

to account for route circuity or natural features such as rivers or lakes. Grid route structures, however, would not readily lend themselves to zonation since the diversity of travel patterns is much greater than when only one node is served, as with the radial pattern. Though experiments have been tried with "cell" zone structures, these have proven complex and cumbersome to implement.

The existence of express, tripper, and regular route services in the same service corridors may also pose problems for zone fare implementation. Since driver wages are by far the greatest costs incurred by a transit system, express routes are likely to cost less, in terms of cost per passenger mile, than regular route services. If both kinds of services cross zone boundaries, then the question of relative premium charges must be faced. From an efficiency standpoint, probably only the regular route passengers should be charged the zone premium since they are imposing more costs on the system in terms of time required to provide their rides than are express passengers. Express passengers, however, enjoy a quality of service benefit which is usually captured through an express premium fare. It may be argued that a separate fare structure should be applied to each type of service, one to capture quality benefits and the other to cover costs varying by trip length.

Finally, zone or other distance fare structures are purported to be equitable, in terms of ability to pay, where lower income groups live near the center of a transit system's route structure--the central business district. Though most census tract household income maps show this to be the case in Wisconsin cities, exceptions may exist. In

these cases, zone fare structures may run counter to local objectives for transit. This should also be a factor in zone fare assessments.

Following is an example of a zone fare system implemented in a hypothetical transit system with 1.5 million annual revenue passengers, the approximate average for Wisconsin transit systems with between 750,000 and 2,500,000 annual revenue passengers. The base adult fare in this system is assumed to be 50 cents and the zone structure to be implemented consists of three concentric zones. Each time a passenger rides from one zone to another, a zone premium of ten cents is charged. The maximum fare, covering four zone boundary crossings, would be 90 cents. Based on origin-destination data from a 1980 Madison transit survey,[12] ridership by zone is broken down as follows:

Within one zone:	25%
One boundary:	42%
Two boundaries:	30%
Three boundaries:	2%
Four boundaries:	1%

By applying a fare elasticity of -0.43, the same used for estimating the medium impact of a flat fare increase in the previous section of this chapter, it is possible to estimate the impact of this fare structure on different segments of the system's riders and ridership as a whole. These estimates are presented in Table 5.

TABLE 5

ESTIMATED RIDERSHIP AND REVENUE IMPACTS
OF ZONE FARE SYSTEM IN A
HYPOTHETICAL TRANSIT SYSTEM

Zone Categories	Current Ridership (000)	Current[1] Revenue ($000)	Zone Fares	Estimated[2] Ridership (000)	% Change	Estimated Revenue ($000)	% Change
Within Zone	375	$159	50¢	375	-	$159	-
One Boundary	630	268	60¢	577	-8.4	295	+10.1
Two Boundaries	450	191	70¢	374	-16.9	223	+16.8
Three Boundaries	30	13	80¢	22	-26.7	15	+15.4
Four Boundaries	15	6	90¢	10	-33.3	8	+33.3
Total	1,500	$637		1,358	-9.5	$700	+10

[1]Average fare = 85% of base fare.

[2]Elasticity of -0.43

SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Though the example indicates that a 10 percent increase in revenue could be expected at the cost of 9.5 percent of the system's ridership, it should be noted that the actual elasticities of the longer rides are likely to be much smaller than -0.43 since a high proportion of these rides would probably be peak period work trips. Generally, this means that actual ridership loss would be somewhat less and revenue gains would be greater. In order to maintain ridership, however, it would

be necessary to educate transit patrons since a certain amount of confusion and uncertainty would accompany the structure change. It may also be necessary to devote a certain amount of effort to driver education for the same reason.

One of the most ambitious zone fare projects in the country is being implemented in Portland, Oregon's Tri-Met system in mid 1982.[13] Modeled after similar systems already in wide use in Europe and Canada, the Portland system will incorporate five zones and make use of a self-service fare collection (SSFC) concept. Passengers either use prepaid passes which are validated in an on-board electronic validating machine or purchase tickets from the driver. Roving fare inspectors will randomly check passenger passes or tickets for payment and may assess up to a $20 fare premium on those evading proper payment. The system is to be installed on all articulated and conventional buses and on light rail cars to be purchased in the future. Elmira, New York and Santa Cruz, California are examples of smaller systems experimenting with similar fare structures.[14] Information on these smaller scale experiments should be available in 1982.

The most promising development for the implementation of zone fares is the SSFC concept. On-board ticketing and validating equipment is currently available and existing systems report very low fare evasion rates. SSFC would probably lend itself to the state's larger transit systems, especially those with radial route structures which may readily be divided into fare zones.

FARE POLICY OPTION III--TIME-GRADUATED FARE STRUCTURE

Transit fare structures which charge differential time-of-day fares have received considerable attention in recent years. Usually a time-graduated fare structure incorporates a higher fare for peak period riders than for off-peak riders. This kind of fare structure may provide several advantages over other fare policy options previously considered. Chief among these are:

1. Peak period fare increases with no concurrent off-peak increases are likely to increase system revenue without significant losses in ridership. This is true due to peak period ridership being generally less sensitive to fare changes than off-peak ridership.
2. Peak period premium fares are likely to encourage some peak riders to shift to off-peak periods. This may allow peak period service reductions and cost savings.
3. Since it is generally accepted that peak period service, where part-time drivers are not permitted, imposes greater costs on the system than off-peak service, a peak period premium fare appears more equitable than a flat fare.
4. Compared to distance-graduated fares, time-of-day fares impose lower implementation costs and cause less passenger and bus driver confusion as a result of shifting from a flat fare structure.

In considering time-graduated fares for any system, however, certain qualifications should be added to the advantages listed. Regarding the first advantage--the possibility of revenue increases without significant ridership losses--it has been shown in research that fare elasticities for off-peak transit service are on the order of twice as large as peak period service.[15] Though this, in effect, means that peak fares could be raised with relatively small declines in ridership, transit systems in the state's smaller cities may find that this does not strictly apply in practice. As noted previously in this report, fare elasticities tend to be much greater in smaller cities, probably due to the relatively short average trip lengths which pose less of an obstruction to a shift in mode than would be encountered in a larger city. If this is the case for a specific small city transit system, peak period ridership loss might be substantial with peak period premium fares.

Peak period ridership loss, whether substantial or minor, may also run counter to the overall transportation objectives of a specific city. If a peak period fare increase results in adding to a city's peak hour traffic congestion by encouraging a slight shift to the auto mode from transit, the new fare policy may be at odds with local transportation objectives. It should be noted, however, that the transit mode accounts for a small percentage of work trips in Wisconsin cities, ranging from 2 percent in the smaller cities to about 12 percent in Madison,[16] and the diversion of a small percentage of these trips to the auto mode is likely to have an extremely small impact on total congestion.

The second advantage of peak period fares--the shift of ridership from peak to off-peak service--is often cited but based on inconclusive evidence. Off-peak free fares in Denver, Colorado, and Trenton, New Jersey, resulted in small shifts in ridership to off-peak from peak service.[17] This shift can be expressed as a cross-elasticity, a number representing the percent change in the consumption of one product (off-peak service) as a result of a one percent change in the price of another product (peak service). In both cases, the cross-elasticities were less than +0.20. It is uncertain how this might apply to Wisconsin transit systems, but it may be assumed that the shift would be small. The probable reason for this is the composition of peak ridership, especially during the morning peak. Most riders are workers or school children who have little choice regarding when they can travel. An increase in the peak period fare, therefore, leaves most peak riders with two choices: change the mode of travel or pay the increased fare.

Though there is general agreement in the transit literature that peak period service is more costly to provide than off-peak service, not all writers agree that a premium peak fare is justified. A study of the Albany, New York, transit system showed that operating costs were indeed higher for peak service but, due to the more intense usage of peak service, costs per passenger were actually lower during that time period.[18] A similar study of transit systems in Los Angeles, Oakland, and San Diego, however, indicates that even though peak period ridership is higher than off-peak, a lower proportion of costs are returned via the fare box during peak periods than during off-peak period.[19]

Given these findings, the validity of the statement that peak period fares are more equitable is questionable. The transferability of these research findings to Wisconsin transit systems is also in question, but local transit officials should be aware that the often cited equitability of peak fares may not necessarily hold true for all systems. Of particular significance is the nature of labor agreements in individual systems since these agreements will largely determine the relative costliness of peak period service. For instance, the ability to employ part-time drivers will substantially reduce peak period costs since considerable overtime and premium pay costs can be eliminated.

Estimated impacts of a peak fare increase in the same hypothetical transit system with 1.5 million annual riders considered in the previous section is presented in Table 6. A peak/off-peak ridership ratio of 2.0 was used to divide total ridership between the time periods.[20] It was assumed, for illustrative purposes, that school ridership accounted for 20 percent of all peak riders. Many medium sized Wisconsin transit systems have a higher proportion of school riders, a factor which would lessen the relative impact of the peak fare if students were exempt from that change.

TABLE 6

RIDERSHIP AND REVENUE IMPACT
OF IMPLEMENTING PEAK FARE SYSTEM
IN A HYPOTHETICAL TRANSIT SYSTEM

Time Period	Flat 50¢ Base Fare		50¢ Base Fare/65¢ Peak Fare			
	Current Ridership	Current Revenue	Riders	% Change	Revenue	% Change
Off-Peak	500	$213	500	-	$213	-
School Peak	200	70	200	-	70	-
Work Peak	800	340	759	-5	420	+24
Total	1,500	$623	1,459	-3	$703	+13

School Fare = 35¢

Average Fare = 85% of Base

SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

It can be seen from the table that an increase in the peak fares from 50 cents to 65 cents, a 30 percent hike, would probably result in an overall loss of ridership of under 5 percent. Revenues would increase by 13 percent assuming a peak period elasticity of -0.17,[21] an elasticity very similar to that for work trips in several Wisconsin cities calculated in a Wisconsin Department of Transportation study in 1981.[22] The estimated impacts are probably conservative since all lost peak period riders are considered completely lost from the transit system. A small number would probably shift travel time to take advantage of the relatively lower off-peak fare. This number would be small, however, since peak riders usually have few travel time options.

FARE POLICY OPTION IV--FARE PREPAYMENT SYSTEMS

Most operating revenue collected by Wisconsin transit systems is collected as exact cash fares deposited in fare boxes. Many transit operators have seen this system of fare collection as having significant drawbacks, such as:

- Inconvenience to passengers
- Lengthy boarding times
- Need for an extensive daily cash accounting system
- Cash flow problems

Fare prepayment systems, as already used in some form by most Wisconsin transit systems, are implemented largely to alleviate these problems. Prepayment systems used in Wisconsin include tokens, trip tickets, and passes (see Table 2). In many cases, these systems provide a discount from the regular cash fare as an incentive to use fare prepayment. Since the use of prepayment is so widespread in the state, this section of the paper will merely examine some prepayment experiences of transit systems in other states.

Besides providing user convenience and accounting benefits, an often stated objective of discounted prepayment programs is long term ridership increases. As with free fare programs, it is reasoned that by attracting large numbers of riders to transit through a fare discount incentive scheme, some of the new riders will stay with transit once the incentive is no longer offered. This reasoning was a primary basis for demonstration projects in Phoenix, Arizona, and Austin, Texas, in 1977 and 1978.[23] Areawide fare prepayment discounts of 20 and 40 percent

were offered at different times in both cities. Intensive marketing campaigns preceded each discount period during which both monthly passes and multiple-ride tickets were sold. Passes and tickets were available in both cities prior to the promotion periods, but discounts were minor or nonexistent.

As expected, the sales of passes and tickets increased markedly due to the discounts offered, but only one to two percent of prepayment users were new riders. Though the offer of discounts on prepayment did not attract a significant number of new riders, existing riders who purchased passes or tickets increased their transit trip rates by an average of nine percent during the promotion period. After the promotion periods, however, trip rates dropped to prepromotion rates and only 25 to 42 percent of new prepayment users continued to purchase tickets or passes.

Generally, the results of these two demonstration projects were disappointing, but they should not be interpreted as characteristic of all fare prepayment experiences. Honolulu, Hawaii introduced a prepaid pass program concurrent with a 100 percent fare increase to 50 cents in 1979 and experienced considerable success.[24] This program was implemented primarily to ease the shock of the fare increase by offering regular riders a $15, unlimited ride pass. The passes were sold at various outlets throughout the city with a "float" incentive offered to private outlets, i.e., banks and retailers had the use of pass sale revenue for nearly a month during each month's sales period. What is most interesting about the Honolulu experience, however, is the actual

increase in ridership despite the 100 percent fare increase. Revenues increased by 47.5 percent over the year prior to the fare increase, indicating a high level of pass usage. Though other factors may have influenced this surprising result, the implementation of the prepayment discount program was obviously a major influence. Cash ridership dropped by over 45 percent following the fare increase and pass program implementation while pass users more than made up for that drop in patronage.

A different approach to fare prepayment was taken in Sacramento where passes were sold through employers to their employees.[25] Sacramento transit officials encouraged employers to sell passes through payroll deductions and to subsidize the cost of employee passes. This 1977-78 demonstration program featured a 25 percent discount on passes purchased from employers--a feature which triggered considerable criticism from the general population who had to pay full cost. Though the program resulted in an 11.4 percent decline in revenue during the first three months, it was estimated that this loss was more than made up within six months by new riders attracted by the discount. In addition, survey data indicated that pass users were less likely to stop using transit than cash riders.

Using the experiences of these four prepayment programs as guides, certain general guidelines, affecting the likely success or failure of such programs, may be provided. Though the following list does not consider all aspects and eventualities of prepayment, it may prove useful in the design or alteration of such programs in Wisconsin. Generally, in order to provide for the greatest likelihood of employer

sponsored prepayment program success (either in terms of revenue increases or greater operating efficiency), the following guidelines should be considered:

1. Employees, as well as employers, should be targeted by the promotional campaign. The Sacramento experience shows that employee solicitation of employers is much more effective than transit system contact. Methods of reaching employees might include ads aimed at the general public or on-board surveys conducted during peak periods.
2. Payroll deductions for the purchase of passes has not proven popular since prospective riders may forego the use of transit rather than make the perceived long term commitment which payroll deduction entails. This method also may deter employer participation since it is likely to cost more to administer than over-the-counter sales.
3. Involvement of community businessmen and other major employers in a booster committee proved useful in Sacramento for the solicitation of employer participation.

For areawide prepayment programs, the following guidelines generally apply:

1. Long term cooperation of retail and other business pass outlets can best be assured through the use of some incentive. Payment of a reasonable sales commission or the use of a "float," whereby businesses have use of pass sale revenue for some time period, have proven successful. It should be considered, however, that a "float" arrangement will largely eliminate any cash flow benefit from prepayment.

2. The price of the monthly (or other time period) pass must represent a savings to regular users to assure ridership and revenue benefits. Gains in patronage made during a promotional period involving a discount may be lost when the pass price reverts to the equivalent of full fare price for regular riders.
3. The use of passes appears to be most popular during periods when general fares are increased and the pass represents a savings to regular riders. Implementation of new pass programs or promotion of existing programs may be most beneficial if coordinated with general fare increases.
4. The use of multiple-ride tickets may actually increase boarding times, counter to a major objective of prepayment, since the driver must punch each ticket.

FARE POLICY SUMMARY

Over 85 percent of Wisconsin's urban transit systems will have increased fares from their 1980 level by the end of 1982. As with previous fare hikes, these involve merely increasing the basic fares without altering fare structures. Generally, the fare increases are likely to price some riders off of the systems while increasing total revenues by something less than the percentage increases in fares. Given that fares need to be increased to more accurately reflect system operating costs, these flat increases may be the most generally acceptable kind of increases to both system users and system management.

Though lacking the simplicity and administrative benefits of flat fare structures, local decision makers may wish to consider alternative fare structures based on either time of travel or distance of travel. Recent research indicates that such structures provide greater economic efficiency in the pricing of transit service and tend to be more equitable than flat fares. Since, under a flat fare structure, the fare bears no relation to the cost of a specific service provided, riders making short trips or, in certain cases, trips during off-peak periods are penalized and may, in fact, be cross-subsidizing those making long trips and/or peak period trips. It should be recognized, however, that adopting a time or distance-graduated fare structure, while possibly improving efficiency and equity, may impose significant costs on the system in terms of implementation requirements, rider confusion, and possible bus driver resistance.

Whatever kind of fare structure is used by a transit system, there appear to be benefits from incorporating some type of prepayment program. Tickets, tokens, or passes may increase operating efficiency, improve cash flow, and encourage bus usage. Experiences in Wisconsin and other states have shown that such programs, especially the sale of unlimited ride weekly or monthly passes, can effectively reduce the impacts of general fare increases when the price of the pass represents a discount off the new cash fare. The success of pass sale programs depends on this discount as well as the kind of agreement negotiated with sales outlets and the extent of involvement by area employers.

Business outlets must perceive a benefit from their handling of pass sales either directly, as in the form of a commission, or indirectly in the form of added or improved business. Employers must also perceive a benefit from their cooperation. Improved employee relations, reduced parking costs, or other such benefits will usually assure employer involvement in selling, and possibly subsidizing the cost of passes to employees.

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CHAPTER III

LOCAL TRANSIT SUBSIDY OPTIONS

INTRODUCTION

This chapter examines current local transit subsidy policies and two potential sources of additional local revenue which could supplement these subsidies. All communities with local bus systems receiving state operating assistance provide local subsidies to their systems. Local property tax is the major source of subsidy, but due to increasing competition for revenues from this source and the likely decrease in federal transit funding, local communities may wish to explore other methods of generating revenue. Under state statute, localities may also levy a room tax, a local sales tax, and a local vehicle registration fee. Since no locality is currently employing either of the latter two options, projections of their implementation are presented along with advantages and disadvantages which might be experienced through the imposition of either tax. The room tax, a local percentage levy on hotel/motel room rates, is generally not a tax on residents and, therefore, not considered here as a local transit subsidy source.

CURRENT LOCAL SUBSIDY POLICIES IN WISCONSIN

Complementing operating revenue as a component of local transit system funding is local subsidy. In 1980--the most recent year for which tax revenue data has been compiled--this source of operations funding amounted to about $8.6 million, or nearly 12 percent of the state's transit systems' operating costs (Table 7). Generally, the nonurbanized transit systems receive a greater share of their operating costs from this source--16.5 percent--than do the urbanized systems--11.5 percent (9.4 percent without Madison). This difference could possibly be explained by the lower level of federal funding of the nonurbanized systems and the generally lower fares and operating ratios in these systems. When local transit subsidies are viewed as percentages of total property taxes, the two classes of transit systems appear to be receiving similar financial commitments from their communities--approximately 0.65 percent of property tax collections (though property taxes are not the sole source of local transit subsidies).

In Wisconsin, all local transit subsidies come from local general funds. Property taxes are the major sources of revenue for these funds with supplemental revenue coming from state and federal shared revenue, tax supplements, and property tax relief. In addition, 26 municipalities impose a room tax, as provided for in s.66.75, Wis. Stats., which generated over $4 million statewide in 1980. Various local user fees, fines, and penalties are also added to local general funds.

TABLE 7

WISCONSIN URBAN TRANSIT SYSTEM
OPERATING COSTS, LOCAL SUBSIDIES,
AND LOCAL PROPERTY TAXES
1980

Urbanized Areas	Operating Costs (000)	Local Subsidy (000)	Total Property Taxes (000)	Local Subsidy as % of Operating Cost	Local Subsidy as % of Property Tax
Milwaukee County	$48,872	$4,558	$526,127	9.3%	0.87%
Waukesha County	419	26	151,251	6.2	0.02
Madison[1]	8,651	2,182	90,501	25.2	2.41
Appleton	1,181	109	23,479	9.2	0.46
Green Bay	1,600	145	41,185	9.1	0.35
Racine	1,611	132	36,387	8.2	0.36
Kenosha	1,586	218	31,900	13.7	0.68
La Crosse	1,155	96	21,536	8.3	0.45
Oshkosh	842	100	15,762	11.9	0.63
Superior	582	95	11,297	16.3	0.84
Urbanized Area Total	$66,499	$7,660	$949,425	11.5%[2]	0.81%[2]
Nonurbanized Areas					
Sheboygan	$ 1,150	$ 156	$ 19,235	13.6%	0.81%
Eau Claire	1,018	138	20,344	13.6	0.68
Janesville	946	204	19,604	21.6	1.04
Fond du Lac	529	73	13,893	13.8	0.53
Wausau	652	60	15,952	9.2	0.38
Beloit	447	78	12,027	17.4	0.65
Manitowoc	327	35	12,676	10.7	0.28
Stevens Point	224	73	9,926	32.6	0.74
Watertown	133	60	6,500	45.1	0.92
Rice Lake	89	15	3,382	16.9	0.44
Merrill	132	44	3,944	33.3	1.12
Ripon	28	3	2,713	10.7	0.11
Nonurbanized Area Total	$ 5,675	$ 938	$ 140,196	16.5%	0.67
State Total	$72,174	$8,598	$1,089,621	11.9%[3]	0.79[3]

[1]Madison did not apply for federal operating assistance in 1980, primarily due to the work stoppage. Local subsidy, therefore, is probably greater than it would have been normally.

[2]9.4 percent and 0.64 percent respectively, excluding Madison.

[3]10.1 percent and 0.64 percent respectively, excluding Madison.

Source: Wisconsin Department of Transportation and *The State of Wisconsin Blue Book, 1981-1982.*

Considering that the majority of local transit subsidy in Wisconsin is made up of property tax collections, it is useful to look at the relative distribution of the tax burden among income classes and also the redistributive impact of using this source of income to support transit operations. There is significant disagreement among economists regarding the distribution of the property tax burden, centering largely on different opinions on the incidence, or ultimate liability, of this kind of tax. These opinions range from the actual liability falling on home owners, tenants, and consumers to those who receive the income from the taxed property. In a recent study by John Pucher,[1] this range of incidence was built into an analysis of the national distribution of tax burden among income classes for various kinds of taxes used to finance transit. Pucher found that one of the most progressive forms of tax, i.e., the greatest proportional tax burden falling on the highest income groups, was the federal personal income tax, whereas the property and sales taxes were fairly regressive, i.e., the greatest proportional burden falling on the lowest income groups (Table 8). Under the federal income tax, those earning under $6,000 pay about 0.028 percent of their incomes to transit subsidies, while those earning over $25,000 pay 0.228 percent. Property taxes, however, take 0.090 percent of the income of those earning under $6,000 and only 0.054 percent of the income of those earning over $25,000 for transit subsidies nationwide. The degree of regressivity of property tax financing of transit subsidies may be even greater in Wisconsin given the predominant use of that tax in local transit finance. This view of the property tax, as noted later in this chapter, is not shared by all economists.

TABLE 8

DISTRIBUTION OF THE TAX BURDEN FOR
TRANSIT SUBSIDIES IN THE UNITED STATES, 1978
(Taxes as a Percentage of Total Money Income)

Tax	Income Class						All Incomes
	Under $6,000	$6,000-9,999	$10,000-14,999	$15,000-19,999	$20,000 24,999	$25,000 and Over	
1. Federal Personal Income Tax	.028	.061	.114	.138	.170	.228	.171
2. Motor Fuel Excise Tax	.017	.024	.026	.020	.022	.011	.016
3. Local Property Tax[1]	.090	.085	.070	.065	.059	.054	.062
4. General Sales Tax	.141	.131	.119	.109	.097	.063	.091

[1]The incidence of the property tax is assumed to fall 50 percent on home owners, tenants, and consumers (regressive), and 50 percent on capital income (progressive).

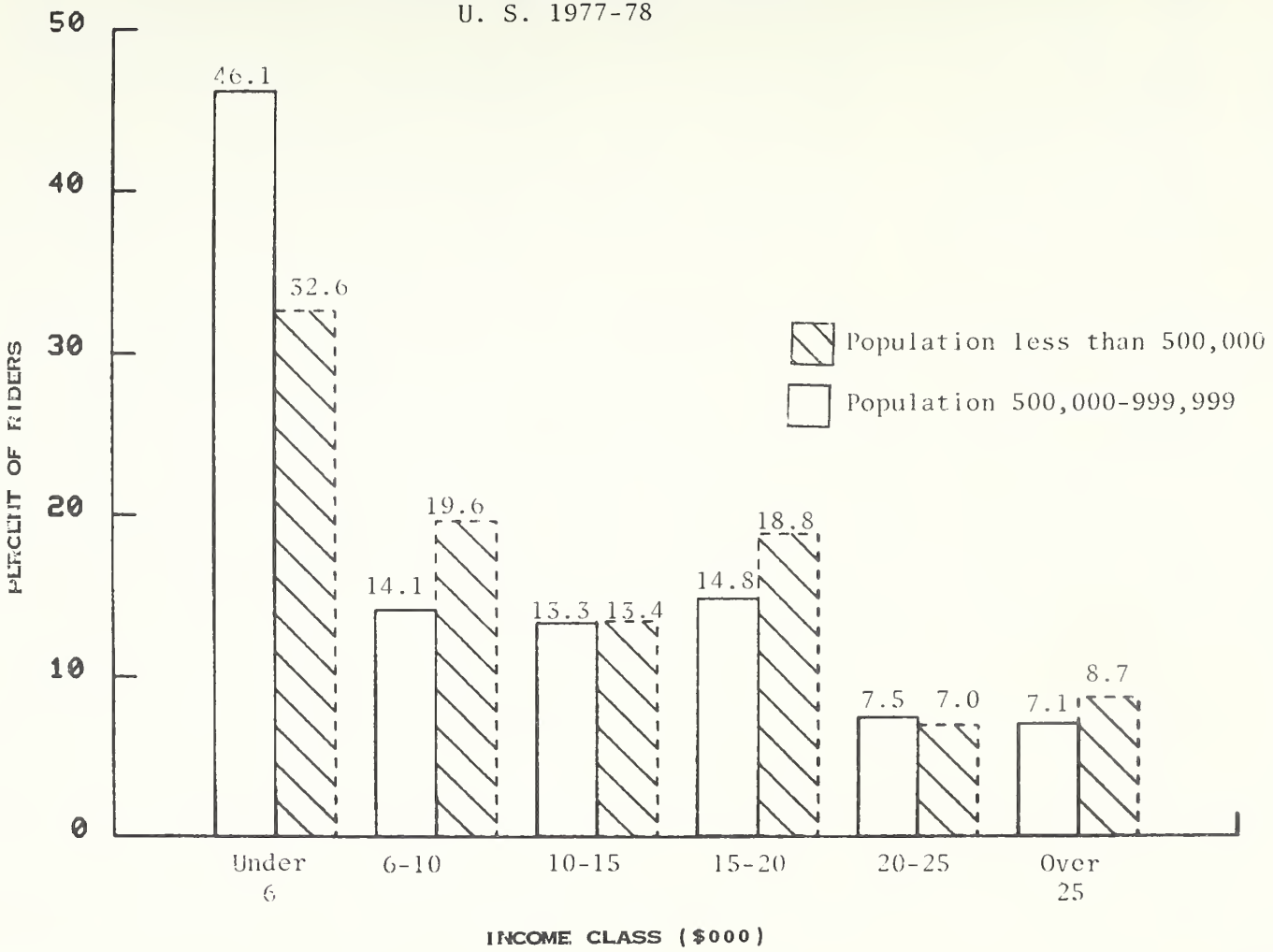
Source: John Pucher, 1981, p. 398.

The redistribution of the tax revenues collected among transit users is another important equity consideration of the type of tax imposed to support local transit subsidies. In 1977-78, according to the National Personal Transportation Study, about 33 percent of the nation's smaller system bus riders had a household income of under $6,000. This was the largest income group among bus riders, indicating that transit subsidies generally benefitted this group more than higher income groups, assuming that all groups used buses the same amount. It is significant to note, however, that about 48 percent of these bus riders had household income exceeding $10,000.[2] These findings are similar to those of rider characteristic surveys conducted in various Wisconsin cities.

Taken together, the distribution of the property tax burden and the redistribution of tax revenues via local transit subsidies, it may be concluded that the extensive use of property tax financed local transit subsidies in Wisconsin is not equitable (Table 8 and Figure 3). The property tax tends to place a disproportionate burden on lower income groups while middle and upper income groups appear to be the major beneficiaries of the transit service financed with the tax revenues. Though this conclusion is based on national data, it may be assumed that the distribution of the property tax burden in Wisconsin is not significantly different than the national distribution. Variations in transit rider incomes, an indication of the redistribution of tax collections, can also be assumed to be similar to the national averages. This assumption is strengthened by the results of rider surveys in Madison,[3] La Crosse,[4] Oshkosh,[5] and other Wisconsin cities. In each case, the

FIGURE 2

VARIATION IN TRANSIT RIDER INCOMES
BY SIZE OF METROPOLITAN AREA
U. S. 1977-78



Source: FHWA 1977-78 Nationwide Personal Transportation Study as presented in John Pucher, "Equity in Transit Finance," *American Planning Association Journal*, October, 1981.

lowest income groups represented the largest single class of transit users while more than half of the riders were members of the higher income groups.

The following two sections will examine two local tax options which counties and/or municipalities are permitted to use under current statutes. Neither of these two options, local sales tax and a motor vehicle registration fee, are currently imposed in Wisconsin.

LOCAL SUBSIDY OPTION I: LOCAL SALES TAX

Under s.77.70, Wis. Stats., any county in Wisconsin may pass an ordinance imposing a countywide sales tax. Such a tax would be imposed at the rate of one-half of one percent and would be collected, along with state sales tax collections, by the Wisconsin Department of Revenue. In order to cover the costs of administering this local tax, the state would retain three percent of the local taxes collected. The remainder would be allocated to the cities, villages, and towns of the taxing county according to a formula based 50 percent on population and 50 percent on the most recent assessment of equalized valuation by the Department of Revenue as provided for under s.70.57. Even though the tax would be imposed at the county level, only towns and municipalities within the relevant counties would receive the tax revenues. For this reason, the county transit systems in Milwaukee and Waukesha counties would not benefit directly from such a tax. Municipal transit systems may benefit provided that part or all of the additional tax revenue is dedicated to transit purposes. State law does not require any such dedication by towns or municipalities, but neither does it prohibit it.

Estimates of local sales tax yields for municipalities with transit systems, using 1980 tax data, are presented in Table 9. Municipalities which received state transit operating assistance in 1980 are included in this table. These estimates may be subject to considerable error since state sales tax collections are not reported by county (mainly due to chain stores paying sales taxes at the state rather than the county level). County taxable sales, therefore, are estimated using each county's proportion of state population and state gross income as surrogate measures in place of proportion of state taxable sales.

Regardless of the political feasibility or equity of the local sales tax in Wisconsin, it is interesting to note the potential magnitude of this optional revenue source compared to local transit subsidies (Table 9). Statewide, municipalities with transit systems could have realized additional revenues from the tax of about $35 million (including Milwaukee) in 1980. At the same time, transit operating subsidies from these same municipalities amounted to about $8.6 million. In every case, local sales tax revenues would have been substantially greater than local transit subsidies indicating that the tax, if implemented, would be able to support more than just local transit services. Such a feature might contribute to the feasibility of the tax since it would assure benefits to a range of local services and still allow for increased local transit subsidies. It may also be possible to reduce property tax levies as a result of the local sales tax.

TABLE 9

POTENTIAL REVENUES FROM 1/2 of 1%
LOCAL SALES TAX
1980

(a) Transit Municipalities[1] / Urbanized Areas	(b) Local Transit Subsidy 1980 (000)	(c) Potential Net Local Sales Tax in County[2] (000)	(d) Potential Net Local Sales Tax in Municipality[3] (000)
Milwaukee[4]	$4,558	$22,590	$13,305
Waukesha Co.[4]	26	7,294	1,190
Madison	2,182	7,553	3,819
Appleton*	109	3,562	1,288
Green Bay	145	3,960	1,952
Racine	132	4,115	1,832
Kenosha	218	2,801	1,621
La Crosse	96	1,936	1,041
Oshkosh	100	2,945	1,011
Superior	95	896	574
Urbanized Area Total	$7,660	-	$27,633
Nonurbanized Areas			
Sheboygan	$ 156	$ 2,251	$ 985
Eau Claire*	138	2,619	1,029
Janesville**	204	2,997	1,103
Fond du Lac	73	1,889	685
Wausau	60	2,319	668
Beloit**	78	2,997	648
Manitowoc	35	1,776	698
Stevens Point	73	1,154	431
Watertown	60	3,008	337
Rice Lake	15	745	138
Merrill	44	513	161
Ripon	3	1,889	141
Nonurbanized Area Total	$ 938	-	$ 7,024
State Total	$8,598	-	$34,657

TABLE 9 - REFERENCES

(see following page)

TABLE 9 - REFERENCES

*Municipality lies in two or more counties.

**Two municipalities in one county.

[1]Though more than one municipality in a county may contribute to operating subsidies, only the municipality in which the transit system is located is considered.

[2]One-half of one percent of taxable sales minus three percent.

[3]Calculated from county net tax using municipality population and equalized assessments.

[4]Milwaukee County Transit System and Waukesha County would not benefit directly since tax revenues indicated would be allocated only to towns and municipalities in those counties.

Source: (Taxable Sales) - Wisconsin Legislative Reference Bureau, *The State of Wisconsin Blue Book, 1981-1982.*

(Population) - U. S. Department of Commerce, Bureau of Census, *1980 Census of Population and Housing, Preliminary Reports: Wisconsin.*

(Income and Equalized Assessments) - Wisconsin Department of Revenue.

In addition to the revenue potential of the local sales tax, it is also relatively easy to administer from the local viewpoint. After adoption of the county ordinance imposing the tax and notification to the state secretary of revenue; administration, enforcement, and redistribution are accomplished at the state level. The only cost to the benefiting towns and municipalities is the three percent of collections, interest, and penalties retained by the state. Distributions of local sales tax collections would be made quarterly according to the formula previously described.

Attesting to the advantages of the sales tax is its general popularity. It is the largest source of state and local general revenue in the United States, accounting for $67.6 billion, or 21.4 percent of all state and local general revenues in 1978.[6] Over $9 billion of this was collected by local jurisdictions. As of the beginning of fiscal year 1977, 29 states permitted some form of local sales tax and 4,400 local jurisdictions were imposing such a tax. At that time, Illinois was the largest user of local sales tax in terms of collections.

Given the advantages and popularity elsewhere of locally imposed sales taxes, it is apparent that substantial disadvantages are perceived in Wisconsin since no county has chosen to adopt this taxing mechanism. One possible disadvantage in Wisconsin is the apparent anomaly in the statute which places the responsibility for enacting the tax on one level of local government--the counties--while allocating the resultant revenues to other levels--towns and municipalities. Even though all

county residents would benefit from distributed revenues, since all towns and municipalities would receive a share of the county total, county board members may see little benefit to county government from the tax.

In some instances, the "border problem" may discourage consideration of this tax, though the problem would probably be slight given the magnitude of the tax. This problem refers to the potential loss of consumers near county borders to adjoining counties where the tax may not be imposed. Situations where a municipality lies in two or more counties, e.g., Appleton or Eau Claire, or where the metropolitan area lies in two states, e.g., Superior, would be most susceptible to marginal tax avoidance. In the former circumstance, it is doubtful whether a county could avoid the problem unless the adjoining counties all imposed the same tax.

Besides the administrative problems associated with the local sales tax, there is the question of the equity of such a tax. According to Pucher, general retail sales taxes are regressive. His study, based on 1978 data, shows that this type of tax, imposed at the state and local levels nationwide, takes 0.141 percent of the money income of those earning less than $6,000 for transit subsidies, while it takes only 0.063 percent of the income of those earning more than $25,000 for that purpose. This, in fact, indicates that the sales tax is more regressive than the property tax. Musgrave agrees that a sales tax is regressive, but contends that the kinds of exemptions which would apply in Wisconsin, i.e., home-consumed groceries, prescription medicines, eyeglasses, etc., would somewhat dampen this regressivity.[7]

LOCAL SUBSIDY OPTION II: MUNICIPAL OR COUNTY VEHICLE REGISTRATION FEE

Unlike the local sales tax, the local vehicle registration fee, or "wheel tax," may be imposed at either the county or municipal level and may be imposed at a locally determined rate up to a statutory maximum. Implementation can be achieved through local ordinance and notification of such enactment to the Department of Transportation. According to s.341.35, Wis. Stats., the local registration fee may not exceed 50 percent of the state registration fee and may only be applied to automobiles and station wagons. A county and a municipality within a county may both impose a fee, in which case a resident of the municipality would be required to pay both fees. The fee is paid to the local treasurer who must stamp the registration renewal notice or provide other proof of payment to the vehicle owner. Such proof must be supplied to the Department of Transportation before the owner can obtain state registration. Costs incurred by the Department in this process are assessed against the locality annually.

As with the local sales tax statute, there is no statutory restriction on the local use of revenues received through this fee. Local transit systems, therefore, will benefit from the fee only if all or part of the revenues are dedicated to transit subsidies.

Table 10 presents estimates of potential revenues which could have been collected by counties and municipalities which supported transit systems in FY 1981. This is the most recent year for which motor vehicle data are available by county and municipality. Two levels of fee imposition are considered in the table: 25 percent and

TABLE 10

ESTIMATED LOCAL RECEIPTS FROM LOCAL MOTOR VEHICLE REGISTRATION FEE, FY 1981

(a) Urbanized Areas	(b) Registered Motor Vehicles 1981[1]	(c) Projected Gross Receipts at 25% of State Fee[2]	(d) Net Receipts at 25%[3]	(e) Projected Gross Receipts at 50% of State Fee[2]	(f) Net Receipts at 50%[3]
Milwaukee Co.	492,699	$3,079,000	$2,587,000	$ 6,159,000	$ 5,660,000
Waukesha Co.	165,702	1,036,000	870,000	2,071,000	1,906,000
Madison	94,627	591,000	497,000	1,183,000	1,088,000
Appleton	34,942	218,000	183,000	437,000	402,000
Green Bay	53,646	335,000	282,000	671,000	617,000
Racine	51,513	322,000	270,000	644,000	592,000
Kenosha	43,169	270,000	227,000	540,000	496,000
La Crosse	25,159	157,000	132,000	314,000	289,000
Oshkosh	25,778	161,000	135,000	322,000	296,000
Superior	13,553	85,000	71,000	169,000	156,000
Urbanized Area Total	969,329	$6,057,000	$5,089,000	$12,117,000	$11,140,000
Nonurbanized Areas					
Sheboygan	25,831	$ 161,000	$ 136,000	$ 323,000	$ 297,000
Eau Claire	29,911	187,000	157,000	374,000	344,000
Janesville	28,623	179,000	150,000	358,000	329,000
Fond du Lac	19,661	123,000	103,000	246,000	226,000
Wausau	19,009	119,000	100,000	238,000	219,000
Beloit	19,556	122,000	103,000	244,000	225,000
Manitowoc	17,745	111,000	93,000	222,000	204,000
Stevens Point	11,497	72,000	60,000	144,000	132,000
Watertown	9,029	56,000	47,000	113,000	104,000
Rice Lake	4,019	25,000	21,000	50,000	46,000
Merrill	4,864	30,000	26,000	61,000	56,000
Ashland	3,963	25,000	21,000	50,000	46,000
Ripon	3,560	22,000	19,000	45,000	41,000
Nonurbanized Area Total	197,268	$1,232,000	$1,036,000	$ 2,468,000	$ 2,269,000
State Total	1,166,597	$7,289,000	$6.125,000	$14,585,000	$13,409,000

TABLE 10 - REFERENCES

(see following page)

TABLE 10 - REFERENCES

[1]Motor vehicles include "automobiles and station wagons" only as per s.341.35.

[2]State fee = $25 per motor vehicle

[3]Total cost of administration = local cost + state cost. Estimated at $1/vehicle based on experience in Kenosha, 1977-78.

Source: *State of Wisconsin Motor Vehicle Registrations, Fiscal Year End Reprot, July 1, 1980 to June 30, 1981.*

50 percent of the state fee of $25. Columns "c" and "e" present gross receipts while columns "d" and "f" present receipts net of estimated state and local costs of administration. Based on the brief experience with this fee in Kenosha in 1977 and 1978, it is estimated that state costs would amount to about 20 to 25 cents per vehicle and local costs would amount to 75 to 80 cents per vehicle. A total administration cost of $1 per vehicle was used for the calculations.

Comparing estimated net receipts from this fee to local transit subsidies in 1980 (Table 7), it is apparent that all localities, except one, could have funded their transit subsidies solely from this source of revenue. The only exception to this is Madison where the annual local operating subsidy substantially exceeded potential registration fee receipts at the maximum level.

Administration of the local vehicle registration fee is probably a significant obstacle to its use. In contrast to the local sales tax, the registration fee must be administered locally with only minor assistance from the state. Local treasurers would be required to collect the fees and to provide each owner with proof of payment which would be recognized by the state Department of Transportation. This would undoubtedly amount to a significant burden on these local offices requiring additional personnel and, possibly, facilities. It is likely that the per vehicle costs would be greatest in the initial year of implementation due to these start up costs. Net receipts should be positive, however, if the fee is imposed at a high enough level.

The border problem would be much less of a problem with this kind of fee than with a local sales tax. Vehicle owners would find it very difficult to escape payment by going to a neighboring community which does not impose the fee. Such an action would require either changing residence or falsifying one's address, neither of which would be likely to escape a current maximum fee of $12.50.

In terms of equity, the local registration fee as allowed in Wisconsin is probably very regressive. Since the fee would be the same for all vehicle owners in a community, low income owners would be paying a greater percentage of income than higher income owners. Another equity consideration is that vehicle owners, as a class, would be subsidizing transit users, a group including a high percentage of non-vehicle owners who would not be paying the fee. This is already done at the state level, where transit aids are derived from the transportation fund.

LOCAL SUBSIDY SOURCES IN OTHER STATES

Wisconsin currently has no statutory provision allowing local governments or authorities to levy dedicated transit taxes. As previously noted, the local sales tax and local vehicle registration fee are not necessarily transit taxes, though part or all of the revenue from either source could, conceivably, be used for transit purposes. Several states allow dedicated local transit taxes of various types applicable to different levels of local jurisdiction. Though none of these taxes could be used in Wisconsin under current statutes, they are briefly considered here in order to indicate the extent of their use and to help form a basis for future legislative recommendations.

In 1980, the United States Conference of Mayors (USCM) conducted a survey of over 139 cities which revealed that about 45 percent (46 out of 101 responses) of the cities have transit dedicated taxes.[8] About half of the remainder plan to impose such a tax within two years. In 25 cases, the transit authority itself has taxing powers, usually on a regional basis. Most of the transit taxes are sales taxes or special property tax assessments and are levied by the local government or transit authority. In several cases, the tax is levied by the state with revenues retained locally. This latter situation is exemplified by California, Illinois, Michigan, and Washington where the state allows localities to keep a certain percentage of sales or fuel tax collections for transit purposes.

States permitting special property tax assessments for transit funding generally provide statutory authority to localities or transit regions to impose a maximum millage assessment over and above that permitted for general purpose revenues. Iowa, for instance, allows cities to dedicate a 54 cents per $1,000 of assessed value tax on real property to transit expenses. Other states permitting such a tax include Indiana, Florida, Minnesota, Montana, and Ohio. There was a consensus among responding mayors, however, that the special property tax was the least popular method for raising local revenues for transit.

Several states allow local taxes on income or payroll for the support of transit systems. About 4,000 local governments impose an income tax, but only Cincinnati, Ohio, dedicates such a tax to transit support. Oregon is the only state which allows transit authorities to

levy a payroll tax. Both Portland and Eugene take advantage of this provision, levying a 0.6 percent and a 0.54 percent tax, respectively, on local business payrolls. It is reasoned that this tax captures part of the benefit enjoyed by businesses since, with transit, they can tap a broad labor market.

Other local taxes used for transit finance across the country include:

- Taxes on mortgages in New York State,
- Taxes on gas and electric utility operations in New York and Louisiana,
- A flat household tax in Tacoma, Washington, and
- Cigarette, liquor, and other excise taxes in cities in Massachusetts.[9]

Besides taxes, local governments may impose bridge or tunnel tolls to help meet transit deficits. New York, Philadelphia, and San Francisco use such a financing technique. Though this type of user charge can produce substantial revenue, its usage is very limited by the lack of suitable facilities which would lend themselves to tolls within municipal jurisdictions. A more feasible dedicated user charge might be parking fees in public lots and/or a tax on commercial parking. Such a tax in New York City yields about $12 million per year.

As previously noted, an important consideration in any taxing scheme is the degree of regressivity or progressivity of the tax. Steven Rock of the Illinois Institute of Technology in Chicago has calculated the incidence of several transit taxes and summarized the

calculations by assigning an index number to each tax type.[10] This "S" index is similar to a Gini Coefficient and ranges from +1.0 to -1.0. A -1.0 indicates absolute regressivity, i.e., the lowest income group bears the entire tax burden. An "S" index of +1.0, on the other hand, would indicate absolute progressivity. An index of 0.0 would indicate a proportional tax. A summary of the taxes considered in this chapter and their "S indexes are presented in Table 11.

TABLE 11

SUMMARY OF TYPES OF DEDICATED TRANSIT TAXES
AND INCIDENCE USING "S" INDEX

Taxing Mechanism	Average "S" Index
Local Income Tax	+0.18
Parking Tax	+0.10
Property Tax	+0.08
Tolls	-0.02
Mortgage Tax	-0.05
Sales Tax	-0.11
Alcohol Excise Tax	-0.11
Payroll Tax	-0.15
Vehicle Registration Fee	-0.21
Gas and Electric Tax	-0.22
Cigarette Tax	-0.26
Household (Head) Tax	-0.39

Judging from Rock's index analysis, income, parking or special property taxes (note that Rock's assessment of the property tax is different from Pucher's, pointing to the wide range of opinion on this tax) would be the most equitable types of transit taxes for Wisconsin to consider. The two taxes presently available, the local sales tax and the vehicle registration fee, are both relatively regressive, though the sales tax is less so.

An additional equity concern in any dedicated transit tax scheme is the specific population to be taxed. According to the benefit principle in public finance, people should pay in accordance with the benefit received. In order for this principle to apply in a dedicated tax situation, only those residing or working in the transit service area should be taxed. This could be accomplished if metropolitan transit authorities, as provided for in s.66.94, Wis. Stats., were given the authority to levy a progressive dedicated tax. Problems of inequitable taxation in transit service areas comprised of more than one municipality could possibly be overcome in this way.

LOCAL SUBSIDY OPTION SUMMARY

All Wisconsin communities which provide subsidies to local transit systems fund these subsidies largely from property tax revenues. Local transit subsidies in 1980 ranged from 0.11 percent of local property tax revenues to over 2.4 percent with an average of about 0.65 percent. They funded from 8 percent to over 45 percent of transit system operating costs with an average of about 12 percent.

The property tax tends to be regressive in nature, falling most heavily on lower income property owners. The redistribution of the tax revenues through transit subsidies may also be seen as less than equitable since most beneficiaries are not members of the lowest income group. This latter factor, of course, would apply to any direct subsidy to transit systems with ridership exhibiting normal distributions of income. A major advantage of property tax funded transit subsidies is its universality and, hence, lack of need for political action to impose a new kind of tax.

The two local options not presently used in any Wisconsin community--local sales tax and local vehicle registration fee--hold the potential for significant revenue increases to local budgets. Municipalities with transit systems could possibly gain about $35 million from the imposition of local sales tax and about $14 million from a maximum vehicle registration fee. Of the two, the local sales tax appears to offer the most advantages in terms of revenue, administration, equity, and general acceptability. It is most prone to marginal avoidance, however, by residents of taxing communities going to nontaxing communities to make purchases. County boards may also be reluctant to impose the tax since there would be no direct benefit to county budgets.

A variety of local option taxing mechanisms are used in other states, the most progressive of which, according to some studies, are local income, parking, and special property taxes. In many cases, these taxes are earmarked for transit purposes and imposed by metropolitan or regional transit authorities. This level of taxing authority could possibly be added to the Wisconsin statutes dealing with local transit authorities and commissions. Such amendments would make local option taxation for transit purposes more feasible and equitable than at present.

ENDNOTES

1. John Pucher, "Equity in Transit Finance," *American Planning Association Journal*, October, 1981, p. 387.

2. Ibid, p. 389.

3. Madison Department of Transportation, March, 1980.

4. William Smith and Associates, Inc., *Transit System Re-evaluation, La Crosse, Wisconsin*, 1977, p. III-12.

5. East Central Wisconsin Regional Planning Commission, *Oshkosh Area Transit Development Program, 1976-1980*, 1975, p. 22.

6. The Council of State Governments, *The Book of the States 1980-1981*, Vol. 23, Lexington, Kentucky: 1980, p. 294.

7. Richard and Peggy Musgrave, *Public Finance in Theory and Practice*, 2nd Edition, New York: 1976, p. 332.

8. U. S. Conference of Mayors, *The Transit Financing Agenda for the 1980's*, 1981.

9. Steven M. Rock, *The Redistributive Impact of Transit Services Financing*, Illinois Institute of Technology, 1981.

10. Ibid, p. 129.

CHAPTER IV

OTHER TRANSIT FUNDING OPTIONS

INTRODUCTION

A number of local options for financing transit expenses exist which do not fit into the categories of fare policies or general local subsidies. This chapter will examine three of these other option categories:

1. Borrowing mechanisms,
2. Benefit charges, and
3. Service contracts or agreements.

Though categories one and two are generally mechanisms for capital financing, it should be noted that utilization of these mechanisms may free up more funds from traditional funding sources for the financing of operating expenses.

BORROWING MECHANISMS

The U. S. Conference of Mayors' 1980 survey identified four major types of borrowing mechanisms for the finance of transit capital equipment.[1] Although these methods are mostly used by transit systems with large scale capital needs, smaller systems in Wisconsin may find some of the concepts useful in devising innovative financing techniques.

The most widely used mechanism for capital finance is the issuance of conventional bonds. This method can only be used where a reliable revenue source already exists for the retirement of the bonds. Examples of such revenue sources include earmarked taxes, revenues from tolls, general purpose funds, and transit fare revenue. The pledging of fare revenue to bond retirement is one of the most recent income sources used for this purpose. New York has recently adopted legislation allowing the issuance of bonds backed by operating revenues, as well as by all the other sources listed.[2] The Metropolitan Transit Authority (MTA) plans on selling about $2 billion in bonds which will be backed by revenues resulting from programmed fare increases.

In Wisconsin, counties may sell bonds to acquire transit systems and to provide funds for the operation and maintenance of the acquired system. Cities, towns, and villages may sell bonds only for system acquisition. Generally, local bonding in the state is limited to five percent of the equalized assessed valuation of property in the bonding municipality (s.67.03 and s.67.04).

Another mechanism for transit borrowing, used by the Southern California Rapid Transportation District, is the equipment trust certificate. In this case, certificates are sold to trustees who hold title to capital equipment purchased with the proceeds from the sale of certificates. The trustees lease the equipment to the transit operator for payments equaling the debt service. Since the certificates are backed by the value of the equipment, they represent a fairly safe

investment and can, therefore, be issued at relatively low interest rates. Also, under federal law, if the certificates are issued by a public agency, e.g., a metropolitan transit authority, interest earned by investors is tax exempt. Railroads and airline companies have used this mechanism for a number of years.

One of the newest mechanisms for obtaining financing for transit capital purchases is the sale/lease back arrangement made possible by provisions in the Economic Recovery Tax Act of 1981. Once again, New York City has been in the forefront of transit systems designing and using an innovative financing mechanism. In this case, MTA negotiated a complex financing package with Metromedia, Inc., involving the purchase of several hundred buses and twelve commuter rail cars.

At the heart of this kind of arrangement are the tax benefits which a transit system can, in effect, sell to a corporation which has only limited tax deductions for depreciation and interest payments. The transit authority may sell at least ten percent of the value of their new transit vehicles, but not more than the nonfederal share, to a private investor who will lease the vehicles back to the authority and receive the entire depreciation and debt service tax deduction associated with those vehicles. At the end of the least term, the vehicles are sold back to the transit authority for a nominal amount.

In addition to New York City, sale/lease back agreements have been negotiated by Los Angeles, San Francisco, Houston, and Boston. Fort Wayne, Indiana, is in the process of negotiating a similar agreement for the purchase of 28 new transit buses. Fort Wayne is a city of about 225,000

people with a 70 bus transit system. There would appear to be few obstacles preventing larger Wisconsin transit systems from participating in this kind of arrangement for large capital projects. It should be noted, however, that only the nonfederal share of capital purchases may be used for this kind of arrangement. If the local share is 20 percent, then the negotiations on percent of equity actually purchased and the resulting tax benefits would only apply to that 20 percent of the value of the equipment.

Senator Robert Dole (R-Kansas), Chairman of the Senate Finance Committee, has recently recommended the repeal of sale/lease back provisions due to abuses and federal revenue losses. The American Public Transit Association (APTA) has proposed that sale/lease back be preserved for transit capital equipment purchases, even if the provision is repealed for private companies.

The final type of borrowing mechanism identified in the USCM survey is the grant anticipation note. This is a very short term mechanism whereby a transit agency will borrow funds from a private investor to carry the agency over until state or federal grants are received. The Southeastern Pennsylvania Transportation Authority (SEPTA) recently issued $30 million worth of these tax exempt notes.

Borrowing or tax benefit sale mechanisms are only likely to be feasible in Wisconsin for very large capital projects. Since proposed federal transit policy includes continued capital funding, these mechanisms would probably only be used where the required local share would exceed immediate funding capabilities.

BENEFIT CHARGES

This type of funding option is similar to the taxes discussed in Chapter III, except that these taxes or charges are only levied against a specific area's businesses or residents who directly benefit from transit service. The charge to property owners can be in the form of a standard service charge, a special benefit tax assessment, or tax increment dedication.

Service charges, similar to charges made for connections to water or sewer systems, may be assessed against property adjacent to transit routes or stations. The charge would be a lump sum payment, usually borne by the developer of the property. This kind of charge is rare and usually only applies to situations where large developments have direct access to subways or other fixed-guideway facilities.

Special benefit assessments differ from service charges in that the assessment is generally added on to the property owner's tax bill and is paid periodically along with regular property tax payments. If the special assessment is used to retire bonds, the assessment would be removed when the bonds are paid off. Though these types of assessments are most commonly used to finance transit malls, as in the case of the State Street mall in Madison, some interest is being expressed in using this mechanism to finance general transit system expenses. San Francisco, for example, recently passed an ordinance designating all downtown office space as a special benefit assessment district. Revenues from this tax district are earmarked for transit system expenses.

The third type of benefit charge, tax increment financing, is founded on the rationale that increases in the value of property as a result of transit service and access should be, at least, partially captured. While this method of value capture has been widely used for urban redevelopment projects, it is doubtful that it could be used for any kind of transit finance outside of large rail transit stations. This method involves bonding to finance a local facility with resultant increases in property taxes used to retire the bonds. The only example of this is the finance of the Embarcadero Station in San Francisco.

SERVICE CONTRACTS OR AGREEMENTS

Contracts or agreements which transit systems may have with public or private entities range from contracting for the transportation of school children to multiple use agreements involving transit vehicles or facilities. These methods all involve revenues paid to the transit system in return for nontraditional services. In order to be considered a local funding option, provision of the service must result in net revenues for the transit system and, therefore, not contribute to the system's deficit.

Special trippers are often cited as sources of additional revenue for an urban transit system if the services are priced so as to recover the full cost of operations. As with route alterations or additions for any other purpose, any action to improve transit services to a major employment center will, at least in the short run, add to the system's deficit if the total cost of the service exceeds total revenue. It is recognized that the provision of industrial tripper service may

satisfy other local objectives such as congestion reduction, long term ridership increases, or environmental improvement. If a major objective of this type of service expansion is deficit reduction, however, then careful consideration should be given to the pricing of the service. Deficits are not necessarily reduced by an improved revenue to expense ratio.

If, for example, a system's operating expenses equal $2 million and its revenues equal $700,000, then that system's revenue to expense ratio is 0.35 and its operating deficit is $1.3 million. By adding an industrial tripper which costs $100,000 per year to operate and which generates $85,000 per year in revenues, the system's operating ratio will improve to 0.37, but its deficit will increase to $1.315 million. It is possible that the employer or employers whose work sites are served by this service may perceive enought benefits in terms of parking space savings and reduced absenteeism to subsidize the service and, thus, cover the deficit.

An example of this kind of agreement was the Cam Bus shuttle service is Oshkosh.[3] Though it was terminated due to increasing costs, the service may serve as a model for other shuttle or tripper agreements. In this case, the Oshkosh Transit System leased buses to the University of Wisconsin-Oshkosh which was concerned about parking and traffic congestion on and around the campus. Students, faculty, and employees were sold reduced fare passes good only on the special routes radiating from the campus. This revenue was meant to cover most operating costs with the deficit made up from student fees and a subsidy from the University parking fund.

A current example of employer subsidized service is the arrangement between the Green Bay transit system and a local hospital. The hospital pays the full cost of service between outlying parking lots and the hospital.

It seems likely that similar agreements could be negotiated with major employers in other urban areas where special transit service could financially benefit the employers. It appears that strict cost control and a firm commitment from employers are keys to the success of such agreements.

Like industrial trippers, transportation of school children holds the potential of generating revenue for transit systems. Again, this kind of service can only be considered a local funding source, as defined in this report, if the system's deficit is reduced as a result of the service provision. Under state law, a school district may opt to contract for transportation with a common carrier (s.121.55), but the conditions of such a contract must be much more prescriptive than one between a private industry and a transit system. Rules contained in Chapter MVD17 of the *Wisconsin Administrative Code* governing vehicle specifications, driver qualifications, and contract format must be observed. If they are observed, the vehicles specified could not be purchased using federal transit capital assistance and the service would not be eligible for federal operating assistance.

A more common type of involvement in school transportation by urban transit systems is the scheduling of school tripper routes which predominantly serve primary and secondary level students, but are open

to all riders. An example of this kind of service is the scheduling of 10 to 12 such routes in Wausau during the school year.[4] Children living more than two miles from schools are eligible, by state law, for free transportation and are given bus tickets by the school district. The district purchases the tickets from the transit system at the student fare rate. All other riders pay individual fares.

Adoption or expansion of school tripper service, however, is unlikely to reduce system deficit. In fact, it is more likely to decrease the system's revenue to expense ratio since more vehicles may be required and the new riders will pay student fares which are usually lower than regular fares. Recently completed transit development plans for Janesville and Oshkosh, among others, have concluded that integrating trippers into existing peak service is a more cost effective method of providing school service.[5,6] Both plans agree that such an action would reduce hours and mileage of operation (and, therefore, expenses) and would improve vehicle utilization. This seems logical from the standpoint of cost control, but may not be practical in all situations due to predominant peak period travel patterns not coinciding with the distribution of schools in the transit service area.

Besides providing transportation to specific groups of employees or students, it may be possible for transit systems to provide special services for certain private interests. In Des Moines, the Metropolitan Transit Authority has contracted with a residential developer to provide transit service to an outlying housing development. The developer, in this case, provides part of the subsidy in return for the service. Other examples exist of agreements between retail shopping mall associations

and transit systems. In return for partial deficit subsidization or, in some cases, full cost payments by the mall association, transit shuttle service is provided between institutions, such as homes for the elderly, and the shopping mall. Such a service has been provided in Wausau for several years.

ENDNOTES

1. U. S. Conference of Mayors

2. Peter Derrick, "New Financing Ideas May Help Bring Back Polish to Transit in Big Apple," *Mass Transit*, April, 1982, p. 10.

3. East Central Wisconsin Regional Planning Commission, *Oshkosh Area Transit Development Program Update (TDP)*, September, 1980.

4. Marathon County Planning Commission, *A Transit Development Program Update for the Wausau Area Transit System*, September, 1979.

5. East Central Wisconsin Regional Planning Commission, p. 58.

6. JHK and Associates, *Janesville Transit Development Plan Update*, January, 1982, p. 129.

CHAPTER V

CONCLUSION

In 1980, Wisconsin urban transit systems received from 34 to 65 percent of their operations funding from local sources--transit fares and local subsidies. Starting in 1982, the state will fund no more than 30 percent of operating costs and the federal government may begin to phase out its share of operations funding. Given that the state and federal levels will not significantly alter their operations funding courses, it is apparent that local transit decision makers must explore options to increase the local proportion of funding. Two basic options present themselves:

1. Reduce service so that current or reduced local funds will be sufficient to cover a greater proportion of costs, or
2. Increase local funding so that current service levels can be maintained.

Those communities choosing the latter option must look at ways to increase revenues from fares, increased local subsidy levels, and/or other local funding sources.

Nearly all of Wisconsin's urban bus systems will have increased fares--more than once in some cases-from their 1980 level by the end of 1982. Regular adult fares of $1 are being predicted by many transit managers for their systems within the next three to five years. These increases and proposed increases are generally across the board

fare hikes with relatively little thought given to altering the basic fare structure to more accurately reflect the costs of providing service to different groups of riders. Though flat fare hikes will normally increase total system revenues at the cost of some ridership, retention of the flat fare structure may be costing transit systems in terms of equity among system users and efficiency within the transit system. It has been shown in recent research that operating costs per passenger mile may be higher for peak period transit service than for off-peak service and that costs per ride are higher for long distance rides than for short rides. Charging a flat fare, therefore, may unfairly penalize the off-peak and short distance bus riders and serve to inefficiently price transit services.

It is possible that graduating transit fares according to trip distance or trip time period may combine the advantages of increased revenues, minimized loss in ridership, improved equity among system users, and efficiency in pricing. These fare structures are also likely to present new problems in terms of administration and rider confusion. Individual transit systems may wish to examine their transit services, costs, and ridership characteristics in order to determine if graduated fares would be feasible and beneficial in their specific circumstances. The state's larger systems are likely to benefit the most from such fare structures. In order to make the best possible decisions regarding fares, local planners and decision makers should have access to the following kinds of information regarding their transit systems:

1. A detailed and accurate breakdown of operating costs, including unit costs per mile and per hour, fixed cost per vehicle, and other fixed costs;
2. Ridership by individual route, by trip length, and by time of day (can be determined through on-board surveys); and
3. Ridership response to recent fare and service changes so that system specific elasticities can be calculated.

In any local transit fare policy review, the role of fare prepayment, as already employed in some form by most Wisconsin transit systems, should be examined. Unlimited ride passes which provide a fare discount to regular riders have been successful in dampening the effect of fare increases and encouraging transit usage in many cities. In addition, passes, plus tickets and tokens, may improve system cash flow and reduce daily cash accounting requirements. Improved boarding times can also be achieved through the use of passes, but may actually be slowed with punch-type tickets.

Local transit subsidies in Wisconsin are largely funded from property taxes and shared revenues. The need for funding by other municipal services may hinder any substantial increase in aid to transit systems from these sources. Under Wisconsin statute, localities may impose three other kinds of taxes or fees: a room tax, a local sales tax, and a local vehicle registration fee. The room tax is already widely used but no Wisconsin community is currently using either of the other taxes.

The sales tax may be imposed by county governments with proceeds going to the county's towns and municipalities. In 1980, this revenue source could have provided about $35 million to municipalities with transit systems (including Milwaukee). Of the two unused local taxes, the sales tax is probably the most equitable (least regressive) and least cumbersome to administer from the local viewpoint. Probably the biggest problem to be overcome with this tax is the level at which it is imposed. The tax would be more likely to be used if it could be imposed at any local level, including the municipal transit authority level, and the net revenues could be retained in the jurisdiction in which it is imposed.

An additional problem with a local sales tax is the May, 1982, increase in the state sales tax to five percent. Given this increase, it might be difficult for any locality to opt for a local sales tax in the near future.

The local vehicle registration fee, or "wheel tax," can be adopted by counties and municipalities and would have generated over $13 million in additional revenues for transit communities in fiscal year 1981. It is a very regressive tax, however, since it is imposed as a flat fee per vehicle. Adding to the problems of this local option is the cumbersome local administration involved. It would be more feasible to implement this tax locally if it were administered by the Wisconsin Department of Transportation. Local treasurers could notify the DOT of implementation and the local charge could be assessed along with the state fee. State expenses incurred in administering the fee could be deducted from local

fee revenues, similar to the procedure provided for administering the local sales tax.

Determining the amount and composition of local transit funding can include the consideration of more than just the adjustment of fares within the existing structure or the allocation of local property tax revenues. Several options and combinations of options involving fares, subsidies, new services and borrowing mechanisms can be considered locally. The ultimate decision should result from a careful analysis of these options in light of transit system characteristics and local transportation goals and objectives.

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TECHNOLOGY SHARING

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