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SCRTD 1978 .C65 c.1

## ANALYSIS OF SANTA MONICA MUNICIPAL BUS LINES

#### SUMMARY

The purpose of this report is to identify the factors which contribute to the difference in operating ratio between the RTD and the Santa Monica Municipal Bus Lines (SMMBL). Although SMMBL currently has a 50.5% operating ratio compared to the RTD's 40.7% for FY 1977-78, SMMBL's ratio has been rapidly declining and in FY 79 is projected to be at 42.4%, according to SMMBL's Short-Range Plan. This suggests that SMMBL's costs are rising faster than ridership and fare. SMMBL projects no fare increase for the next five years.

The range of differences between the RTD and SMMBL have been grouped into three major categories and analyzed in such a way as to illustrate their direct impact on the operating ratio:

- 1. Labor Ratio: RTD experiences 8.4% higher labor rates when grouping all categories. If RTD were able to reduce labor rates to those comparable to SMMBL, the RTD operating ratio would be increased by 2.4%. Lack of detailed data on SMMBL work rules does not permit an analysis of the cost of RTD work rules.
- 2. Support and Administrative Costs: If SMMBL were to incur the cost of direct services it receives from the City of Santa Monica, it would reduce the SMMBL operating ratio by only 1%. However, the RTD incurs other administrative and support costs which are necessary because of the size of the RTD service area, the fleet age, the nature of its service changes and the complexity of its labor contract in the Planning, Schedules, Telephone Information, Instruction, Supervision, and Maintenance Departments. The dimensions of this cost to the RTD as compared to the SMMBL cannot be quantified since SMMBL's method for handling such functions is not known.

3. Ridership: Because the RTD is committed to providing regional service, to maintaining equity service, and to responding to transit needs in sectors of varying density, the RTD experiences a lower ridership than SMMBL, 2.19 trips per mile in comparison to SMMBL's 3.77 trips per mile. If the RTD were to experience SMMBL ridership and charge SMMBL fare, the RTD operating ratio would be 42%. With SMMBL ridership, but charging RTD fare, the RTD would operate at 69%. Table 9 illustrates the impact on operating ratio when ridership and fare are equalized.

In the absence of an intimate knowledge of the details of the operations of SMMBL, a detailed calculation of what it would cost the RTD to run the SMMBL system would have too many assumptions to be valid. RTD cost per mile applied to SMMBL miles shows an overall 21% higher cost. Operator costs are compared in Table 4.

However, if the RTD were to provide the same service, service economies would be achieved by RTD changing routing and bus operator schedules, as well as combining lines with other RTD lines. The cost savings of such changes, as well as other such as using SMMBL yard as a division, of having to run fewer percentage of deadhead miles, of not having to maintain a fleet of non-revenue vehicles, and all the other differences between the RTD and SMMBL cannot be measured.

### INTRODUCTION

The purpose of this analysis has been to assess the major differences in characteristics in the transit operations of the RTD and the Santa Monica Municipal Bus Lines to explain the difference in operating ratio.

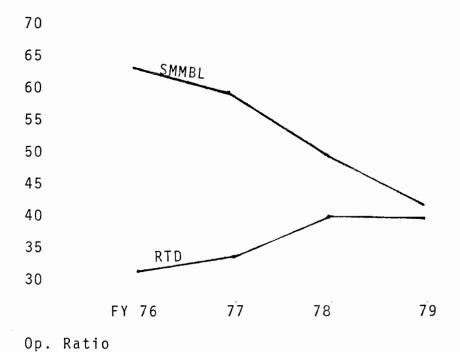
For the purpose of this report, operating ratio is defined as the quotient of fare revenue divided by operating expense. While the operating ratio, as an indicator, does not acknowledge differing conditions under which properties are operating, it is frequently used in a comparison to other properties to imply how efficiently transit is being provided. It should be noted, however, that operating ratio is not an accurate measure of operating efficiency since fares are determined by policy, not as a reflection of an operator's capability to provide transit.

A comparison of operating ratios is as follows: SMMBL figures are based on information from SMMBL's short-range plan, FY 1979-1983,. A graphic illustration is included as Table 1.

r	RTD	SMMBL
FY 1976 FY 1977 FY 1978* FY 1979* * Projected	32.4% 34.4% 40.7% 40.0%	64.7% 60.0% 50.5% 42.4%

TABLE 1

SMMBL AND RTD OPERATING RATIOS



While the focus of this analysis has been strictly on the current fiscal year, 1977-78, the marked decrease over the past three years of the SMMBL operating ratio has been attributed, at least partly, to the gradual integration into the SMMBL budget of certain costs, previously borned by the City of Santa Monica, which because of Project Fare are being required to be reported by UMTA. Because information researched on this project was limited, this statement was not verified during the course of the study with any Santa Monica personnel.

Information sources used for this report are as follows:

- o SMMBL Short-Range Transit Plan, 1979-1983
- o The City of Santa Monica Budget, FY 77-78
- o TDA Applications for FY 1977-78
- o Memorandum of Understanding Between City of Santa Monica and United Transportation Union, Local 1785, 1977
- o A set of schedules on SMMBL routes

No direct contact with SMMBL personnel was made.

The basic elements for comparison of the two properties are shown in Table 2.

A comparison of the Auditor General performance indicators of the two properties is also illustrated in Table 3.

It should be noted that since SMMBL only records its passengers as linked passengers or trips, all ridership data throughout this report will generally be cited in terms of trips. RTD passengers have been factored by .73 to equate to linked passengers or trips.

While some of the arguments and analyses in this report may seem somewhat circular, the lack of precise data or an intimate knowledge of the operations of the SMMBL do not permit a more detailed or direct response to the question of why the different operating ratios. Thus the analysis in this report should be viewed as adequate for only general system comparisons.

TABLE 2

COMPARISON OF KEY CHARACTERISTICS
FY 77-78

	RTD	SMMBL
Operating Expense Passenger Revenue Operating Ratio Base Fare Cost per Mile Cost per Service Mile Average Fare per Trip	\$199,933,000 \$ 81,500,000 40.7% 40¢ 1.90 2.27 .36	\$ 5,584,000 \$ 2,823,000 50.5% 25¢ 1.57 1.70 .21
Total Transit Buses Average Fleet Age One-Way Route Miles Miles Operated In-Service Miles	2,391 11.3 4,390 105,000,000 87,780,000	114 8.6 104.3 3,555,000 3,277,300
Linked Passengers Un-linked Passengers Linked Passengers per Bus Total Service Hours	227,000,000 312,000,000 Hour 31 Pass 7,300,000	13,400,000 N. A. 50 Pas 268,632
Bus Operators* Other Employees* Total	4,250 2,270 6,520	148 <u>50</u> 198

<sup>\*</sup> Excluding indefinite leave (mid-year estimate).

TABLE 3

FY 78 PRODUCTIVITY FACTORS - AUDITOR GENERAL

	SCRTD			SMMBL		
Cost per Vehicle Service Hour	199,933,000 7,300,000	=	\$27.38	5,584,000		\$20.78
Cost per Serv. Mile			\$ 2.27			\$ 1.70
Operating Cost per Passenger (Trip)	199,930,000 227,000,000	=	\$ .88	5,584,000 13,400,000	=	\$ .42
Vehicle Service Hour per Employee	7,300,000 6,520		1119 hours	268,632 198	=	1356 hours
Passengers (Trips) pr /ehicle Service Hour	227,000,000 7,300,000	=	31.1 passengers	13,400,000 268,632	=	49.9 passengers
Passengers (Trips) per Vehicle Service Mile	227,000,000 87,780,000	=	2.59 passengers	13,400,000 3,277,300	=	4.09 passengers

#### LABOR RATES

According to the Memorandum of Understanding between the City of Santa Monica and the UTU, motor coach operator base pay as of July 1, 1977, was \$7.07 per hour. Because cost of living povisions are not mentioned in the Memorandum, the extent of such provisions or even whether there are such provisions for cost of living increases are not known. This SMMBL base rate compares to the RTD's rate of \$7.35 per hour for the same period, or 4% higher than SMMBL.

In comparing the budgeted wages and overtime for SMMBL operators, the average annual wage is approximately \$18,500. This compares to the RTD operators for the same FY 1977-78 of \$19,500 assuming \$7.67 per hour at 46 hours per week for 52 weeks with a 6.5% COLA. This amounts to 5.4% higher RTD costs.

Similar comparisions of maintenance employees and all non-contract positions are illustrated on Table 4. This shows that equivalent RTD positions in maintenance areas pay 24% higher and in other administrative areas, including non-contract, pay 15% higher wages.

If RTD labor rates are applied to SMMBL employees, as in Table 4, overall labor rate differences come to a total of 8.4% higher rates for the RTD.

The impact of this higher wage rate on the RTD's operating ratio can be illustrated as follows:

If RTD labor rates dropped by 8.4% to the level of Santa Monica wages, operating expenses would be reduced by \$10,920,000, reducing operating expenses to \$189,013,000, which if divided into fare revenue would increase the RTD operating ratio to 43.1% or 2.4% higher than the actual 40.7% operating ratio.

Conversely, if SMMBL's labor rates were increased by 8.4%, operating costs would be increased by \$294,733, which would produce a 48% operating ratio, or 2.5% lower than the actual 50.5% operating ratio.

A detailed and quantifiable comparison of RTD and SMMBL labor contracts with regard to work rules is not possible because of the brevity of the SMMBL-UTU Memorandum of Understanding. While SMMBL operators are guaranteed 8 hours pay and have similar split work provisions, the details in SMMBL operations are not included in the contract. No mention is made in the SMMBL Memorandum of the following items which not only comprise significant costs to the RTD but which generate a significant amount of non-productive operator pay time:

		0 i f
	(7/77)	RTD Equivalent
	AT RTD RATE	Total Cost
TAB. 4	OF SMMBL LABOR AT RTD RATES	RTD Cost Per Employee
		Total Cost
	COMPARISON	Cost Per Employee
		SMMBL Position

	SMMBL Position	Cost Per Employee	Total Cost	RTD Cost Per Employee	Total Cost	RTD Equivalent	Di1	ff. 
22211127111111	Dir. of Transp. Asst. Dir. of Transp. Chief Motor Coach Sup. Transp. Maint. Supts. Dept. Admin. Asst. Transit Prog. Spec. Motor Coach Supv. Senior Accountant Senior Secretary Secretary Accounting Clerk II Transp. Cashier Clerks Intermed. Clerks	\$37,944 23,294 19,226 21,222 18,566 15,410 17,573 14,272 11,588 13,534 10,761	\$ 37,944 23,294 19,226 21,222 18,566 15,410 123,014 18,138 14,272 11,588 13,534 21,522	\$ 34,956 \$ 28,400 \$ 24,360 \$ 17,904 \$ 19,932 \$ 15,252 \$ 15,300 \$ 14,477	\$ 34.956 28,400 23,100 24,360 18,912 17,904 17,904 13,9524 21,876 15,252 15,252 30,600	Supt. of Transp. Supt. of Divisions Chief Supv. Div. Mgr. Mgmt. Analyst Admin. Analyst Act. Supv. Secretary III Secretary III Asst. Cashier Cash Clerk	21 C 16 C 13 C 14 C 8 C 10 C 12 C 5 C 5 C 5 C 6.96/hr.	
	Sub Total		\$359,640	07	\$ 411,782			15%
11 13 19 19	Mechanic Supvs. Mechanics Mechanic Assts. Custodian I Motor Coach Cleaners Storekeeper	18,466 14,688 11,903 10,980 9,957 12,746	36,931 161,569 59,516 10,980 89,610 12,746	19,932 18,346 16,453 13,083 11,957 15,953	39,864 201,812 82,264 13,083 107,620 15,953	Equip. Supv. I Mech. B Utility A Mopper Serv. Attendant Storekeeper	10 C 8.82/hr. 7.91/hr. 6.29/hr. 5.75/hr.	
	Sub Total	457	371,352	σ,	\$ 460,596			24%
148	Motor Coach Operators	18,485 2	,735,863*	19,500	\$2,886,000			5.4%

<sup>\*</sup>Including overtime

Total

8.4%

\$3,759,378

\$3,466,855

- o Recovery Time
- o Travel Time
- o Biddable vs. Non-Biddable Tripper Provisions
- o Shake-up and "Bumps and bids" provisions
- o Qualification Time
- o Extra Board Mark-up and Utilization Provisions
- o Use of Operators "On Report."

Although the impact of these provisions can not be measured, they tend to reduce the number of service hours and service miles per operator, as illustrated below:

	RTD	SMMBL
Miles per operator	24,706	24,020
Rev. miles per	20,654	22,143
operator		

While RTD operators drive slightly more total miles, they drive fewer revenue miles than SMMBL operators.

Table 5 represents a brief comparison of those provisions of the SMMBL and RTD operator labor agreements which are known.

Table 6 illustrates the cost-per-mile components, particularly relating to labor costs. Operator wages in relation to total cost per mile represent 87 % per mile for SMMBL while RTD operators cost 76 % per mile. The reasons for this are unknown although it may be that RTD operators drive more revenue miles per pay hour, thereby reducing cost per mile. Pay hours data is not available for SMMBL.

This table further demonstrates the magnitude of the higher maintenance costs to the RTD. This higher cost per mile reflects not only higher wage rates, but also the cost of more employees to maintain an older fleet and a large number of non-revenue vehicles. Although the number of non-revenue vehicles is not known for SMMBL, the small size of their service area suggests a significantly lower need, if any.

Thus, while the RTD does experience higher labor rates, probably higher costs due to work rules, and higher costs in maintenance associated with the need for more employees, if the cost per mile for operators and maintenance is added, a close comparison of RTD's 98¢ per mile to SMMBL's 96¢ per mile is revealed. Where even greater disparities are then shown is in the cost of "all other wages" showing a 24% difference and the cost of "Fringe Benefits" showing a 15% difference. While the cost of non-contract and other administrative personnel is shown to be 15% higher in Table 4, this comparison suggests greater differences are experienced in the level of administrative services which will be addressed in the next section.

## TABLE 5

## COMPARISON OF BUS OPERATOR LABOR AGREEMENT

	RTD CONTRACT	SMMBL MEMORANDUM
Length of Agreement	3 years	3 years
Right to Strike	Yes	No
Base Rate FY 78*	\$7.35	\$7.07
COLA in Contract	Yes	No
100% of Pay Rate	After 2 years	After 5 years
Overtime	l½ hourly rate	$l_{2}^{1}$ hourly rate (may receive comp. time if used within same pay period).
Retirement	UTU pension plan	Public Employees Retirement System
Vacation	5 days after 1 year 10 days after 2 years 15 days after 5 years 20 days after 10 years 25 days after 19 years 30 days after 30 years	6 days after 6 months 12 days after 1 year 18 days after 10 years
Sick Leave	40 hours after 1 year 48 hours after 2 years 56 hours after 3 years 64 hours after 4 years 72 hours after 5 years 80 hours after 6 years 88 hours after 7 years 96 hours after 8 years	Unknown (provided under SM Municipal Code)
Uniform Allowance	\$75 to \$80 per year	\$150 per year
Sign-on Time	10 minutes	<pre>10 minutes if necessary. 3 minutes before leaving to make a relief, if necessary.</pre>
Sign-off Time	5 minutes	None

<sup>\*</sup>Base rate does not include COLA

# TABLE 5

-2-

# RTD CONTRACT SMMBL MEMORANDUM

Assured Work Schedule	Guaranteed 8 hours	Guaranteed 8 hours
Days Off	Guaranteed 8 hours at 1½ times rate	Guaranteed 5:20 at 1½ times rate of pay
Split Work	Reg: 8 hours within 10 Extra: 8 hours within 11	Reg: 8 hours within 10 Extra: 8 hours within 11
Accident Report Time	30 minutes	Maximum of 20 minutes
Holidays	9 paid holidays 1 floating holiday	9 paid holidays 2 floating holidays

TABLE 6

TOTAL COST-PER-MILE COMPONENTS
FY 77-78

			CMMDI		
<del></del>	Cost Per Mile	RTD	SMMB Cost Per Mile	<u>%</u>	
Operator Pay (Dept. 3200 UTU)	76¢	40%	87¢	55%	
Maintenance Pay (Dept. 3300 ATU & BRAC)	22¢	12%	9¢	6%	
All Other Wages	26¢	14%	_2¢_	1%	
Total Wages	1.24	66%	98¢	62%	
Fringe Benefits	29¢	15%	14¢	9%	
Other Expenses	37¢	19%	<u>45¢</u>	_30%	
	1.90	100%	1.57	100%	

## SUPPORT AND ADMINISTRATIVE COSTS

Because the SMMBL is a department within the City of Santa Monica, SMMBL receives services from other municipal departments which do not have to be retained by SMMBL. Some of these services include: Personnel, Legal, Accounting, Data Processing, Purchasing, and Engineering.

Table 7 illustrates the RTD support or administrative services which do not appear in the SMMBL budget. The sum of these services represents 3.6% of the RTD's operating expense.

In an effort to account for services received from other municipal departments, SMMBL has budgeted for an expense of \$56,000 in FY 77-78 for "Services Rendered by General Government." This amount equates 1% of SMMBL operating expenses. Since no investigation was conducted into the City of Santa Monica's accounting system, how this 1% figure was derived or its accuracy as a true reflection of services rendered by other departments is unknown.

For illustration purposes, if SMMBL were to pay 3% for these services, more closely approximating the RTD, their operating ratio would be reduced by only 1%.

However, SMMBL operations are 18% of the City's budget. The \$56,000 which SMMBL pays for general services rendered represents 3% of the total administrative support costs of the City budget. It seems unlikely that a department representing such a significant portion of the City budget utilizes such a disproportionate percentage of city support services.

SMMBL's operating budget which appears as a portion of the City budget is \$449,902 lower than those costs reported to SCAG in the Short-Range Plan. Of this difference \$357,000 is the increase reported to SCAG in insurance cost over what appears in the City budget. Since the Short-Rnage Plan was prepared in February, 1978, this insurance cost as well as other higher costs may be a more accurate reflection of actual cost. The remaining \$91,000 difference is distributed throughout all costs categories in the Short-Range Plan.

There are additional administrative costs which RTD incurs as a result of size and service area which have no clear definition in either the SMMBL or City Budgets. One example is the RTD Telephone Information which costs the RTD 1% of its costs, approximately \$2,000,000. This function appears to be served by existing SMMBL staff during the course of other administrative or secretarial duties, since telephone information is provided though no position is specifically budgeted for it.

Similarly the functions served by the RTD's Planning and Schedules Departments comprise almost 2% of RTD's costs. These functions are probably performed by one or two of SMMBL's top five administrative staff, though probably cost SMMBL less than .5%. The size of the RTD's Planning and Schedules Departments are dictated by the frequency and dimensions of service changes and the complexity of the RTD's operator labor contract. SMMBL's service has changed only slightly in the last five years. Further, SMMBL has not experienced the fluctuations in subsidy levels with the county which have caused such dramatic changes to the RTD.

Another expense which the RTD incurs as a result of the size of its service area is the size and expenses of the RTD Instruction and Supervision Departments. The RTD service area of 2280 square miles in comparison to SMMBL's 32 square miles increases not only the cost of personnel but the cost of non-revenue vehicles to monitor the entire service area.

These and other similar administrative costs serve to significantly increase the RTD's cost per mile. But is not possible to compare the cost of such RTD departments to SMMBL because of insufficient knowledge of how such functions are performed in SMMBL.

TABLE 7

RTD EXPENSES NOT SHOWN ON SANTA MONICA BUS LINES BUDGET-BUT APPLIED TO OTHER MUNICIPAL DEPARTMENTS

RTD	City Of Santa Monica	FY 78- RTD Estimated Cost
Board of Directors	City Council	\$ 267,389
General Manager	City Manager	150,406
Special Agents	Police Department	116,852
Board Secretary	City Clerk	75,457
Legal	City Attorney	150,000
Non-Rev. Veh. Maint.	Maintenance	1,997,508
EEO	Administrative Services	74,232
Labor Relations	Administrative Services	197,899
Personnel	Administrative Services	555,892
Accounting	Finance	1,015,669
EDP	Finance	688,850
Purchasing	Administrative Services	749,795
Engineering	General Services	487,425
Rapid Transit	N/A	673,100
Total		\$7,200,473
As % of total RTD Bu	dget	3.6%

## DIFFERENCES IN RIDERSHIP

Comparative statistics show that SMMBL carries 3.77 passenger trips per mile vs. the 2.19 trips per mile carried by the RTD. This difference in ridership is based upon the significant differences in service characteristics and service areas. These are:

- 1. The RTD is a regional carrier and is committed to providing region-wide transit service.
- The RTD is committed to maintaining equity service in all areas of the service area.
- 3. The RTD must be responsive to the demands of each sector which vary greatly in terms of density.

Express Transit: 22% of the RTD's miles is in express services compared to SMMBL's 9%. Because express service is long-haul and has limited boarding and alighting, the net effect is to lower the number of passengers-per-hour and per-mile.

Regional Transit: Also related to the local and express features, the RTD's average length of line is 20.9 miles which is approximately twice as long as SMMBL's average line. Length of line impacts ridership because passengers can ride for longer on the longer lines, also reducing boardings and alightings.

These features of express and regional service are illustrated in a comparison of the following indicators:

			<u> </u>	RTD	SMMBL
Passengers Passengers	•				49.9 4.09

It should be noted that annual passengers are derived by SMMBL by dividing annual fare revenue by an average fare figure. SMMBL has no figures on passenger miles. Therefore, no accurate assessments of the productivity of regional vs. local service can be made.

Maintenance of Low Ridership Lines: Due to policy and equity service demands, 27% of RTD miles are being run on lines of less than 20 passengers per bus hour. Thus the RTD system average of 31 trips per bus hour is heavily weighted by such a substantial percentage of miles of low passenger counts.

With SMMBL's significantly higher passengers per-bus-hour figure, it is unlikely that SMMBL provides much service in areas of such low ridership.

Many of these low ridership lines are in the outlying sectors in which the District has improved service in recent years, and are maintained to meet equitable regional service allocations or to provide vital transit connections. Typically this occurs in low population density areas.

To assess the impact of the very low ridership lines (less than 20 passengers per hour) on overall system ridership averages, the mileage and ridership of these lines were substracted from the system total. The result of abandoning this service would be as follows:

	RTD	<u>SMMB</u> L
Current Passengers per mile	2.1	3.8
Without low ridership lines	2.7	

To assess the cost to the RTD of maintaining this equity service, the operating ratio was re-calculated, substracting 27% of the miles from cost and the necessary fare revenue from cost and revenue. This calculation shows that the RTD would operate at a 50% operating ratio without this service.

Density: SMMBL provides its service in areas of consistently very high density, the City of Santa Monica having the highest density in this county, in the range of 10,000 population per square mile. This compares to the RTD's service area characterized by areas of high and low density. Based on the average ridersper-mile in the RTD sectors, compared to density, there appears to be a correlation between high density and high ridership, as shown in Table 8. SMMBL's average trips per mile is 3.77. The table illustrates that in areas of equal or higher density, the RTD shows better ridership figures than SMMBL. Further, it should be noted that 15 of the RTD's 20 most productive lines operate in the West Los Angeles sector, in areas of comparable or perhaps lower density than the SMMBL service area. Further, the operating ratio on these lines range between 65-80% and they carry an average of 5 riders per mile.

The net effect of these primary differences in service characteristics and density on operating ratio can be illustrated as follows:

If the RTD were to experience the same ridership as SMMBL and charge SMMBL fare, the RTD would be operating at a 42% operating ratio, or 69% ratio with RTD fare.

Or, conversely, if anta Monica were to experience RTD ridership at RTD fare, they uld be operating at a 49% ratio or with SMMBL fare at a 29% ratio. (See Table 9)

These calculations illustrate that density and service characteristics have a dramatic impact on operating ratio.

TABLE\_8

COMPARISON OF DENSITY TO RIDERSHIP

AREA	Pop/Sq. Mile	Riders/Mile*	Trips/Mile (.73 rides)
RTD SERVICE:			
SGV	3,600	1.72	1.26
SFV	3,328	1.93	1.41
ELA	12,486	5.3	3.87
So. Central	11,866	5.4	3.94
W.LA	4,414	5.8	4.23
SMMBL SERVICE	10,000	N.A.	3.77

<sup>\*</sup>Weighted average as derived by dividing Annual Passengers by Annual Miles Source: Line Summary.

TABLE 9

IMPACT OF RIDERSHIP AND FARE ON OPERATING RATIOS

	RTD	SMMBL
SMMBL trips per mile/SMMBL fare	42.0%	50.5%*
SMMBL trips per mile/RTD fare	69.0%	84.0%
RTD trips per mile/RTD fare	40.7%*	49.0%
RTD trips per mile/SMMBL fare	24.0%	29.0%

<sup>\*</sup>Represents current operating ratio

## CONCLUSION

This report has attempted to outline some of the factors which affect the comparision of properties. In this study two of the major areas are labor rates and administrative costs. These explain at best, however, only half of the difference between the RTD and SMMBL operating ratios. This suggests that differences in service characteristics, such as population density and riders per mile, have as much of an impact or may have an even greater impact on the operating ratio than labor or administrative costs.