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AN ANALYSIS OF REVENUE COLLECTION COSTS  
FY 1980-81

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

Operations General Department

October, 1981

One of the most vital aspects of bus transportation is the revenue collection process. The revenue collection process includes a number of sub-tasks such as collection, sorting, and counting of farebox receipts as well as manufacture and sale of passes, tickets, and tokens. The purpose of this report is to examine the costs of the fare collection process currently utilized by the Southern California Rapid Transit District (SCRTD) and to identify potential issue areas for further study.

The report is divided into three sections. The first section describes the SCRTD's fare structure and policies. It also describes the process set in motion when a patron drops the fare in the farebox or buys a pass at a District outlet. The second section analyzes the costs associated with revenue collection for both farebox monies and prepaid sales. Costs included in this section are personnel, materials and supplies, capital, and contract costs. The final section of the report identifies several issue areas related to the revenue collection system for further study.

#### I. The Revenue Collection System

The SCRTD is the nation's largest all bus transit agency with 2900 buses, and an operating budget of \$337 million in FY 1980-81. Of the \$337 million operating budget, \$140 million or 41.5% came from passenger revenues (farebox + prepaid sales). The fare structure for FY 1980-81 is shown in Table 1. As the table shows, the basic cash fare was 65 cents and the basic monthly pass was \$26. Discounted cash fares and monthly passes were available to elderly and handicapped individuals. Transfers cost 20 cents and were limited to a maximum of two uses. A premium was charged for express or freeway travel and was dependent upon the distance traveled. Each express zone added 30 cents to the regular cash fare or \$8 to the monthly pass. All students, as well as elderly and handicapped individuals, were not charged for express zones if they rode an express bus. The above fares were in effect during both peak and off-peak hours. Since 1969, SCRTD has required passengers to make exact payment of their cash fares. Passengers have also been required since August 1, 1980 to use only coins for fare payment. This policy banning the use of currency as payment of fare was implemented due to the costs involved in processing currency. The effects of this second policy decision will be discussed further in the final section of this report.

Revenue collection at SCRTD takes place in one of two ways. Either the patron boards the bus and pays a cash fare, or the patron buys a ticket, token, or pass beforehand and uses this to pay for the trip. Cash fares are paid upon boarding the bus. The patron deposits the cash fare into the farebox. The operator inspects the fare and allows the coins to drop into the vault portion of the farebox. At the end of the day, the vault is removed from the bus by maintenance personnel while the bus is being refueled. Full vaults are placed on a cart and empty vaults are put on the bus. The vault carts are then loaded into a District-owned armored truck by the vault truck driver and driven to the Central Cash Counting Office with Transit Police escort. Vaults are placed in secured storage in the Central Cash Counting Office. Upon reporting for

work at the Central Cash Counting Office, cash clerks begin to empty vaults and sort tickets and currency from coins and tokens. Several cash clerks separate and perform a preliminary count of the day's coins and tokens. Coins are bagged for shipment to the bank while tokens are returned to the Cashier's Office. Other cash clerks separate the tickets from the currency and then destroy the tickets. The bills are unfolded, flattened, counted and bound for shipment to the bank. A private armored car service transports bills and coins to the bank for final counting. Money is then deposited into the SCRTD account. Discrepancies in dollar amounts between preliminary and final count are reported to the Cashier.

Under the prepaid sales system, prepaid sales staff select and monitor the activities of contract sales agents, deliver timetables and passes to all locations, produce internal sales reports, and staff Customer Service Centers. The prepaid sales revenue collection process begins when the patron walks into one of 10 District operated Customer Service Centers or one of 250 contracted agents located throughout the SCRTD service area to purchase tokens, tickets or passes. In the case of District operated Customer Service Centers, the ticket clerk fills out a bank deposit slip at the end of the day. The deposit slip includes all revenues collected that day. This deposit is picked up by an armored car service and transported to the bank for deposit. The contract sales agents fill out monthly reports detailing their transactions and send these reports and unsold passes back to the District. Payment of revenue collected is made by the agent to the SCRTD Accounting Department, usually in the form of a check. The Accounting Department then reconciles reports and revenues from the contract sales agents as well as bank statements from activities at District Customer Service Centers. Revenue from contract sales agents is taken to the bank by District personnel. The following section describes these activities and others as costs of the fare collection process.

## II. Costs of Revenue Collection

The four areas into which the costs of the revenue collection system fall are personnel, materials and supplies, contract services, and capital costs. This information is displayed in Table 2.

As the table shows, the majority of money spent on revenue collection operations is for labor costs. These costs represent salaries and fringe benefits received by District staff. Personnel costs represent 58% of all expenses identified as part of the revenue collection operation. Personnel involved in farebox revenue collection are divided among the Maintenance, Accounting, and Transit Police departments. There are also several departments with personnel dedicated to prepaid sales collection including Accounting, Transit Police, and Marketing and Communications. Under materials and supplies, costs have been included for printing, office supplies, uniforms and utilities. Contract services costs represent commissions paid to contract sales agents, maintenance on coin counting equipment, bank and armored car service, and rent for District Customer Service Centers where appropriate. Capital expenses refer to vault trucks, fareboxes and vaults, and coin counting equipment.

As Table 2 indicates, the total costs of farebox revenue collection is approximately \$2.7 million. The cost of prepaid sales operations is \$2.35 million. Added together, the total cost of collecting passenger revenues at SCRTD is \$5.05 million. This sum represents less than 3.6% of the \$140 million collected in passenger revenues during FY 1980-81. In order to determine whether or not this percentage is unique, comparison data is necessary. Very little information is now available concerning the costs of revenue collection for other public transit agencies. One of the few studies prepared in this area was conducted by Simpson and Curtin in 1978. The Simpson and Curtin study identified fare collection costs for six transit agencies and determined that these costs ranged from 3.5 to 10.3% of the amount of revenue they collected. Using this data for comparison, it appears that the revenue collection costs of the SCRTD are currently similar to the costs experienced by other public transit agencies.

### III. Issue Areas Related to Fare Collection

During the preparation of this report, several issue areas related to fare collection were identified and targeted for further study. The topics identified included the following: the acceptable range of collection costs, accuracy in fare collection, and patron convenience in revenue collection.

It appears that the revenue collection costs experienced by the SCRTD are comparable to the costs incurred by other public transit agencies. However, it is possible that future studies may identify additional cost savings.

Even if additional savings cannot be identified, monitoring of fare collection costs should continue. There are already indications that events in the very near future will result in increased collection costs. With fares approaching the \$1 mark, the number of coins received for fare payment has increased markedly. It is possible that in the near future, the coin capacity of the vaults could be exceeded and larger vaults would be required.

Many patrons respond to the present fare by using dollar bills for payment. Dollar bills can and do jam the farebox now in use by the SCRTD leading to service delays and road calls. Since bills must be folded to enter District fareboxes, they must be unfolded to be counted. While coins can be processed with machines, paper dollars must be processed by hand and this can be costly if large numbers of bills are being collected.

At SCRTD, the volume of currency received has increased rapidly as fares have increased. As shown in Table 3, the District received about 8,000 paper dollars per day in FY 1980-81. Despite a policy to discourage the use of paper dollars, the amount of paper currency received after the July 1, 1981 fare increase has jumped to over 90,000 per weekday in October. It is believed that this figure will continue to grow for the next several months. Additional studies should be undertaken to monitor fare collection costs. Other studies should be conducted to determine the fiscal impact of collecting large quantities of coin and paper currency.

The second issue area identified for further study relates to the accuracy of fare collection. Bus operators have traditionally been responsible for verifying correct fare payment by inspecting the fare after it is deposited into the farebox. As transit fares have increased, the number of coins deposited has also increased and this in turn, has made it increasingly difficult for operators to verify that correct payment has been made. It is also difficult for operators to detect when paper dollars are torn in half before being deposited in the farebox.

The amount of underpayment the District incurs has not yet been assessed, but Duncan Industries has estimated that revenue loss due to miscounted fares amounts to 5% for transit agencies in general. In other words, the total dollar amount of farebox revenue is 95% of what it would be if all fares were paid in full. Using this approximation, the District's uncollected revenues for FY 1980-81 would have equalled \$4.7 million. Registering fareboxes could improve the accuracy of fare collection but would require a much larger capital investment than the non-registering boxes currently used at SCRTD.

There are also believed to be significant amounts of lost revenue in pass sales and usage. This occurs when any one of several different passes in use by the District is counterfeited and sold. While the severity of this problem has not been precisely identified, the problem is serious enough that monthly passes will soon be printed on paper stock that will be more difficult to duplicate, at a cost 10 times higher than what is currently paid.

The third issue area identified for further study relates to the concept of patron convenience in revenue collection. Single coin fares such as the quarter or the dime have traditionally been most convenient for transit patrons. It is possible that tokens or clad (Susan B. Anthony) dollars may replicate this convenience for today's transit patron. However, as Table 4 indicates, token and dollar coin use has remained low in relation to other payment modes. The purchase of monthly passes may be the most convenient method for patron fare payment. However, SCRTD's experience with prepaid sales indicates that while patron convenience may be increased, costs associated with prepaid sales revenue collection are greater than costs associated with farebox revenue collection. Table 5 shows this relationship. Farebox revenues are almost double the amount of prepaid sales revenue, yet farebox costs are only slightly higher than prepaid sales costs. The entire issue of patron convenience and acceptance of fare payment methods should be explored in future studies.

#### Conclusion

In FY 1980-81 the costs of fare collection amounted to \$5 million for the SCRTD. The ratio of fare collection costs to fare revenue was similar to that found for other public transit agencies. However, recent fare policies may serve to change this ratio in the very near future. Future studies related to this area might focus on collection cost monitoring, accuracy, and patron convenience in fare collection.

TABLE 1

Southern California Rapid Transit District

FARE STRUCTURE FY 1980-81\*

CASH FARE	BASE FARE	EXPRESS ZONES**	TRANSFERS (max. 2 uses)
Regular	\$ .65	\$.30 per zone	\$.20 per use
Student (18 or under)	.50	no charge	.10 per use
College or Vocational	.65	.30 per zone	.20 per use
Elderly and Handicapped	.30	no charge	.10 per use

MONTHLY PASSES AND STAMPS	BASE FARE	EXPRESS ZONES
Regular	\$26	\$8 per zone
Student (18 or under)	\$16	no charge
College or Vocational	\$20	no charge
Elderly and Handicapped	\$6	no charge

\* Fare effective July 14, 1980 through June 30, 1981. No difference in fares between peak and off peak hours.

\*\* An Express Zone is 4 freeway miles. A rider can be charged for a maximum of 5 zones plus the base fare.

TABLE 2

Southern California Rapid Transit District  
 REVENUE COLLECTION COSTS FY 1980-81

	FAREBOX	PREPAID SALES	TOTAL
Personnel	1,878,952.60	1,041,408.51	2,920,361.11
Material and Supplies	163,287.88	250,698.36	413,986.24
Contract Services	180,020.59	1,057,852.44	1,237,873.03
Capital	492,400.00	-0-	492,400.00
Total	2,714,661.07	2,349,959.31	5,064,620.38

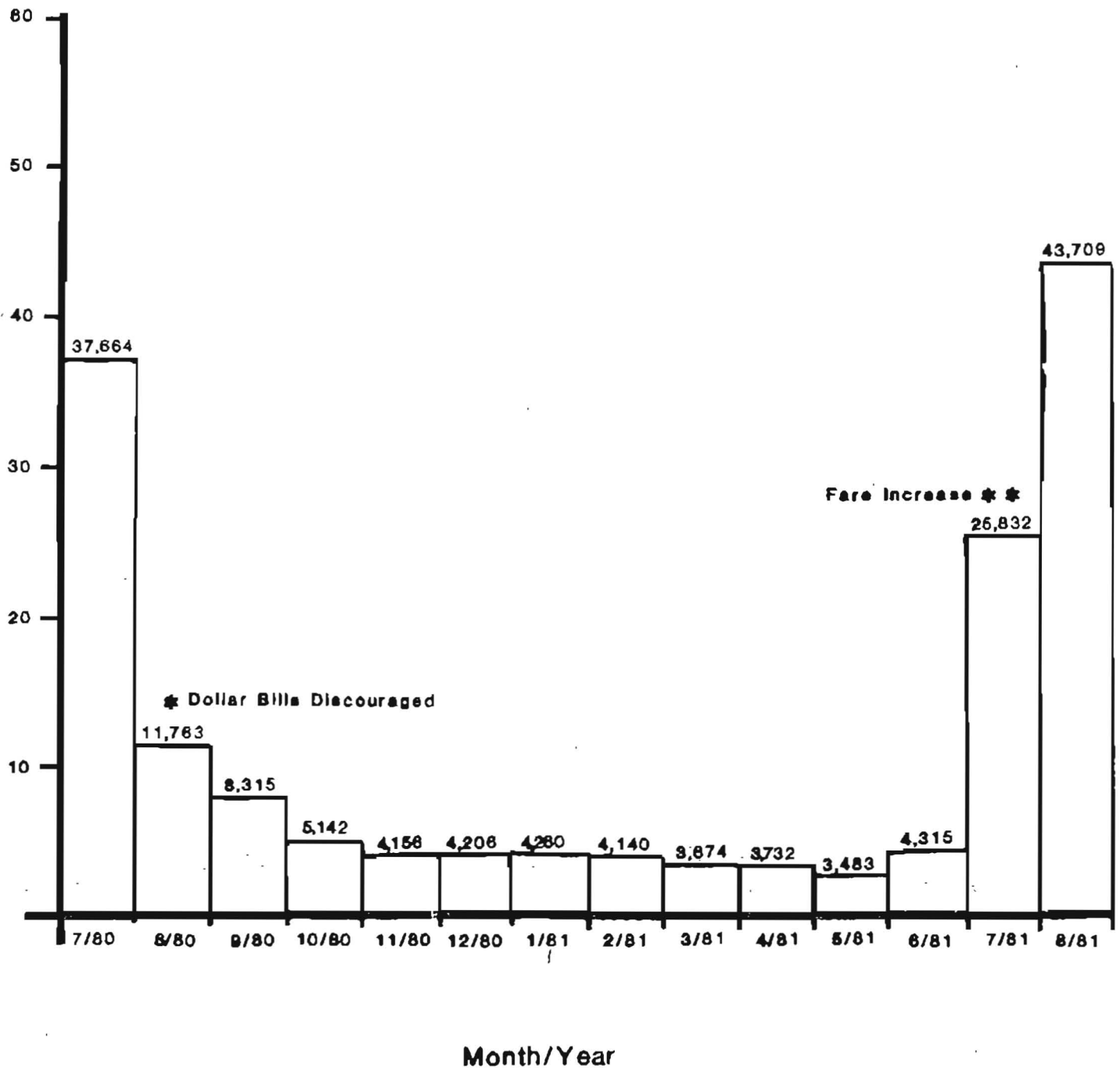
**TABLE 3**

**Southern California Rapid Transit District**

**NUMBER OF PAPER DOLLARS RECEIVED**

No. of Paper Dollars Received ( 000's )

( Daily Average )



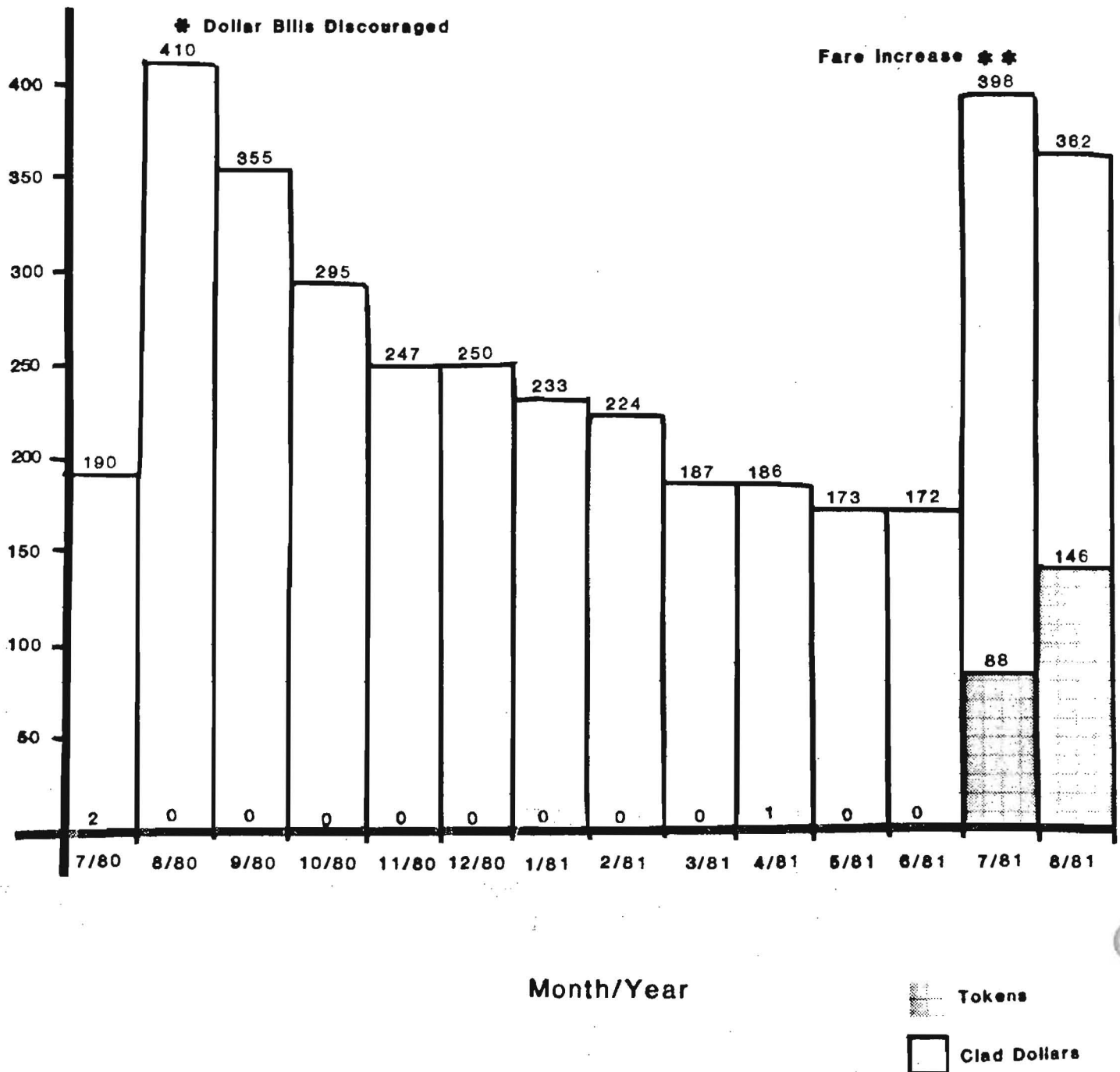


**TABLE 4**

**Southern California Rapid Transit District**

**NUMBER OF TOKENS AND CLAD DOLLARS RECEIVED**

**No. of Tokens and Clad Dollars  
( Daily Average )**



Source: SCRTD Cashier's Daily Summary.

**TABLE 5**

**Southern California Rapid Transit District**

**REVENUE COLLECTION COSTS vs. AMOUNT OF REVENUE COLLECTED**

**FY 1980-81**

	<b>FAREBOX</b>	<b>PREPAID SALES</b>	<b>TOTAL</b>
<b>Total Revenue</b>	<b>90,088,279.25</b>	<b>50,247,312.75</b>	<b>140,335,592.00</b>
<b>Total Costs</b>	<b>2,714,661.07</b>	<b>2,347,959.31</b>	<b>5,064,620.38</b>
<b>Cost / \$ Collected</b>	<b>\$.03 / \$1</b>	<b>\$.047 / \$1</b>	<b>\$.036 / \$1</b>