

GOT A TICKET? A NORTH COUNTY TRANSIT DISTRICT TICKET TO RIDE IS HARD TO GET

SUMMARY

North County Transit District (NCTD) utilizes ticket vending machines (TVMs) for its rail services as a way for travelers to purchase tickets or to update their monthly smart card (Compass Card). What appears to be a simple machine to use can be frustrating for hurried travelers in need of a ticket to ride. NCTD utilizes TVMs—similar to those the San Diego Metropolitan Transit System uses for the trolley—for both its Sprinter and Coaster services. These machines have been in use since 2008 for the Sprinter and since 1995 for the Coaster.

The Grand Jury found significant evidence that the NCTD TVMs have failures at a much higher frequency than NCTD and its maintenance and service contractor (Contractor) acknowledge. A detailed examination of data NCTD provided showed the Contractor not only frequently failed to report TVM failures to NCTD but also did not correct the failures in a timely fashion. During Grand Jury inspection trips, jurors noted frequent failed attempts by customers to purchase tickets using both currency and credit/debit cards. NCTD acknowledges that, in some cases, it has no way of knowing a machine is down (not operational) unless customers call and complain. The failures inconvenience the customer purchasing a ticket, and the TVM does not always self-report the failure. According to NCTD officials, the key measure of TVM performance should be the customer's satisfaction.

The Grand Jury is recommending NCTD:

- Establish clear, reasonable, and measurable TVM performance standards, and require the Contractor to adhere to those standards.
- Provide sufficient signage at TVMs to encourage customers to report TVMs that fail to operate.
- Consider upgrading all TVMs to accurately indicate any cause of failure on the screens, and appropriately direct customers to other TVMs.
- Consider upgrading TVMs to electronically transmit all failures to both NCTD and its Contractor.
- Provide adequate signage to direct customers on the proper techniques of credit/debit card usage.
- Explore options to extend the Contractor's TVM technicians' coverage through all operating hours of the Sprinter and Coaster.

- Require the Contractor to clearly define which type of TVM maintenance procedure (monthly or quarterly) has been accomplished and note it on the Service Call Report (SCR).
- Carefully review the SCRs the Contractor provides to ensure the monthly and quarterly preventive maintenance is accomplished as contractually required.
- Carefully review the Contractor's SCRs to determine, independently, the frequency and types of TVM failures and the actual down-time.

INTRODUCTION

In response to complaints that the NCTD TVMs were not working properly, the Grand Jury initiated an investigation.

The investigation focused on six main areas:

- How TVMs account for money.
- What constitutes a TVM failure.
- What TVM failures are reported.
- How TVM failures are reported.
- How the maintenance and repair of TVMs is conducted.
- Where a customer finds information on obtaining a ticket.

PROCEDURE

The Grand Jury conducted interviews with NCTD officials and its Contractor. Grand Jurors also toured Sprinter and Coaster stations as well as rode the Sprinter train on various dates, using and, in some cases, attempting to use the TVMs. Jurors took video and photographs of TVMs. The Grand Jury researched NCTD maintenance and service records and the professional services agreement between NCTD and its Contractor. Further, the Grand Jury reviewed the rules and regulations posted on the NCTD website, including a video tutorial on how to use the TVMs.

DISCUSSION

A TVM is a machine that produces tickets at the Coaster and Sprinter stations. There are 55 TVMs servicing the NCTD network. The typical transaction consists of a customer using the screen to select the type and quantity of tickets and then choosing a payment method. The payment options are cash (bills or coins) or credit/debit card to purchase a ticket or a smart card (Compass Card). The ticket(s) are printed and dispensed to the customer. Illustrations of the Coaster and Sprinter TVMs are in Photos 1 and 2 below.



Photo 1 – Coaster TVM



Photo 2 – Sprinter TVM

Non-working TVMs were evident at many of the Sprinter and Coaster rail stations. The Grand Jury wanted to know why the machines were having operational issues and if they were being properly maintained.

NCTD provided the Grand Jury with two years of Service Call Reports (SCRs), from October 2014 through September 2016 that showed numerous mechanical and technical issues with TVMs. The SCRs also clearly indicated a lack of what type of maintenance (monthly or quarterly) was performed on the machines as the maintenance agreement required.

The Grand Jury examined several TVMs at various Sprinter stations. Some TVMs were not working properly (i.e., would not accept cash or read credit/debit cards). Further, nothing on the screen interface indicated that the machine was not currently accepting one or more of those payment options, causing a delay in obtaining a ticket to ride the Sprinter. Also, when a TVM was not working, the screen interface did not route

customers to another machine. On one occasion, a Grand Juror missed the Sprinter due to delays caused by an inoperable TVM.

Both NCTD and its Contractor consider a machine operational if it accepts one or more forms of payment, but not all. The Grand Jury considers a failure of any of the payment systems a failure of the entire machine.

In the process of the investigation, the Grand Jury discovered that the TVMs are unable to self-report some important error data. If the TVM does not show a system failure on the screen, NCTD and its Contractor are unaware that the TVM has experienced a failure. Unless the customer notifies NCTD (by phone or email) that the machine is inoperable, the failure goes unnoticed, unreported, and unrepaired. Grand Jurors noted the customer is often too busy attempting to get a ticket from another TVM and then catching the ride to take the time to notify NCTD of the problem.

TVMs are built to allow a potential customer various options in purchasing a ticket. When a customer uses the TVM to process a credit/debit card, the card must be inserted in the correct orientation as shown on the TVM. However, if the customer inserts the card either too fast or too slow, does not insert it all the way into the slot, or inserts it at an improper angle, the card will fail to read. The Grand Jury learned that credit/debit cards must be inserted to the stop and then removed at a moderate speed to get the desired result. There is little information posted to aid customers on proper insertion technique.

Regrettably, the TVM screen does not note the failure, leading to customer frustration. The Grand Jury was advised that newer generations of card readers, available on newer models of TVMs that can read a card no matter which way it is inserted, could reduce the problem and make the transaction easier for the customer; however, no date was provided as to when or if the existing card readers would be updated.

In reviewing the SCRs, the data shows frequent mechanical and technical issues with some TVMs. Preventive maintenance is noted in the SCRs each month for each TVM. However, the notes do not specify which type of TVM maintenance the Contractor performed monthly and/or quarterly, as per the NCTD agreement. The agreement requires the Contractor to service the TVMs if they are not functioning properly.

The quarterly preventive maintenance consists of the tasks the monthly preventive maintenance requires with the addition of:

- Cleaning inside and outside.
- Cleaning of the coin verifier.
- Cleaning of the printer-multi-feeder.
- Function test of critical units such as battery backup, printer, bank note acceptor, coin verifier, etc.
- Lubricating locks.

Per the service agreement between NCTD and the Contractor, the TVMs are to have 98 percent up-time during operational hours. However, in interviewing officials from NCTD and its Contractor, the Grand Jury found a discrepancy in what constitutes “up-time.” If a TVM does not accept some of the payment options but accepts others, NCTD considers the TVM to be operational. However, only when a TVM accepts none of the payment options is it considered non-operational. From the customer’s perspective, when a machine does not accept the payment option of choice, the machine is non-operational.

During interviews, NCTD officials disclosed that sometimes the TVM’s internal system will report to NCTD and its Contractor that the bill collector or the coin collector is full. NCTD contracts with a separate bonded company to pick up the cash boxes on a scheduled basis. NCTD does not determine failure to accept bills or coins as a TVM failure, but the customer sees a non-functional machine if bills or coins are their only means of payment. NCTD officials stated that the TVM’s display screen is supposed to indicate in red lettering that the machine cannot accept bills or coins or is out-of-service. This condition is reported electronically to the Contractor for appropriate service action. The Grand Jury discovered while using TVMs on different days and locations that the TVMs were frequently not working properly. Several unsuccessful attempts were made to obtain a ticket, but the screen displayed no error or failure notification. The Grand Jury believes that the Contractor did not receive a failure notification until NCTD received a complaint advising the machine was not working.

In reviewing the TVM maintenance agreement, the Grand Jury noted it requires a 98 percent up-time for the 55 machines during the time trains are in service, but there is no apparent methodology or checks and balances with regard to the calculation of that percentage. The Grand Jury also discovered the SCRs showed the TVMs were actually operational only 94.5 percent of the time in contrast to the Contractor’s monthly performance reports for NCTD, which indicated over 98 percent up-time for all of the TVMs. This cannot be a true indicator of the TVM performance from the customer’s perspective as well. The Grand Jury also found no evidence that NCTD had disputed the TVM performance report that the Contractor provided.

Table 1 below summarizes the information the Grand Jury gleaned from the NCTD TVM SCRs. The calculations were made using the minutes of unavailability on the 55 TVMs in relation to the operating hours of the Sprinter and Coaster (determined to be 1,675,200 minutes or 27,920 hours per month by multiplying the operating hours per week by 55 TVMs and multiplying by 4.33 weeks per month average).

	GRAND JURY TABULATION		CONTRACTOR
	NCTD TVM Network	NCTD TVM Network	TVM NETWORK
	minutes down	% up	From Contractor % up
2014			
Oct	156109	90.7	98.3
Nov	199270	88.1	94.2
Dec	84904	94.9	98.0
2015			
Jan	43999	97.4	99.3
Feb	51679	96.9	98.8
Mar	85471	94.9	99.1
Apr	92643	94.5	98.5
May	78692	95.3	98.7
Jun	74080	95.6	98.4
Jul	67653	96.0	99.0
Aug	74329	95.6	99.1
Sep	135430	91.9	99.1
Oct	74163	95.6	98.9
Nov	65485	96.1	98.5
Dec	103356	93.8	98.9
2016			
Jan	66165	96.1	98.8
Feb	76387	95.4	98.9
Mar	64541	96.1	99.3
Apr	108028	93.6	98.2
May	61801	96.3	99.3
Jun	75463	95.5	98.9
July	161230	90.4	98.7
Aug	111015	93.4	98.3
Sep	105709	93.7	98.1
Average	92400	94.5	98.6

Table 1 – TVM Performance Calculations

The Sprinter operates from 4:00 a.m. each day and ends service at 9:30 p.m. Sunday through Thursday, with operation to 12:30 a.m. on Friday and Saturday. The Coaster operates from 5:07 a.m. to 8:11 p.m. Monday through Friday, with Saturday and Sunday operations from 8:30 a.m. to 8:12 p.m. The Contractor, however, has maintenance and service coverage only 84 hours per week (from 6:00 a.m. to 6:00 p.m. daily). This leaves a number of hours that a TVM could be non-functional and unavailable to the customer.

When customers are unable to purchase tickets from the TVMs as the result of the machines not taking the customer's choice of cash or credit/debit cards, NCTD runs the risk of losing revenue. This also puts customers in a difficult position. Should they take the chance of riding the Sprinter without paying the fare and risk meeting a code enforcement officer? On the Coaster, a conductor is aboard each train and can check passengers' tickets.

The NCTD website has a video showing how to use the TVMs.¹ One of several discrepancies in the video is the statement, "The TVMs at the Sprinter stations have an emergency button; push it and you will be connected with our dispatch and they will assist you." The Grand Jury examined several of the TVMs at various Sprinter stations. None of the TVMs had an emergency button that performs in the manner described in the video.

A search of some Sprinter stations did reveal a call box, separated from the TVMs, marked with "Need info" and others marked "Emergency" on the side of the call box. However, there was no signage explaining the proper use of these devices. (The boxes and buttons are illustrated in the photos below.) The Grand Jury found there is no informational announcement or signage explaining who to contact if a customer is having issues with a TVM. When pushed, a customer was greeted with a voice asking, "What is your emergency?"



Photo 3 – Call Box



Photo 4 – Face of Call Box

¹ <http://www.gonctd.com/ticket-vending-machines/>

An AUDIO button located on the front of the Sprinter and Coaster TVMs was apparently designed to play a recording for the visually impaired, explaining how to use the TVM. However, the Grand Jury found that at the Escondido Transit Center, one TVM is located approximately 150 yards from the other two TVMs. This solitary TVM has no signage or call box, and the AUDIO button did not work when pressed during several visits over a six-month period. Further, after a complaint was issued that the AUDIO button did not work, the button was rechecked after four days to find it still did not work.

The key measure of the TVM performance—according to NCTD—is customer satisfaction. Therefore, the Grand Jury believes any failure to perform a customer request should be considered a failure of the entire TVM. Nevertheless, there are numerous TVM failures that are not immediately acted upon by NCTD or the Contractor.

The Grand Jury was advised NCTD has begun establishing its own system of monitoring TVMs, but that system is not yet fully operational. The Grand Jury encourages NCTD to sharpen its focus to evaluate all the elements of customer satisfaction and act on the real failures to perform. Furthermore, The Grand Jury believes NCTD should focus more on collecting its own data rather than relying on data prepared by the Contractor. The Grand Jury believes NCTD should recalibrate its customer satisfaction matrix to reflect the relationship between customers and TVM reliability.

FACTS AND FINDINGS

Fact: Analysis of NCTD-provided SCRs from October 2014 through September 2016 reflects TVM functional average up-time at 94.5 percent during train operating hours.

Fact: The Contractor's reports to NCTD during the same period showed that the functional average up-time is 98.6 percent during train operating hours.

Fact: The Grand Jury found no evidence that NCTD had disputed the TVM performance reports provided by the Contractor.

Finding 01: The undisputed TVM performance results the Contractor provides are different from that determined by analysis of the failure and repair data from NCTD.

Fact: When the cash-management system is non-functional due to a bill or coin collector being full, the machine is not determined to be out of service.

Fact: In many cases, only the customer knows the TVM is not functioning when he or she is unable to obtain a ticket.

Finding 02: When the TVM does not satisfy the customer's need to purchase a ticket and no failure is noted on the screen, NCTD does not consider this a failure of the TVM when analyzing performance.

Fact: The nature of the TVM failure is not always displayed to the customer.

Fact: When a TVM is not working, the customer is not routed to another TVM.

Finding 03: TVM ticketing failures occur too frequently and customers are not informed of the alternatives.

Fact: Not all error messages or ticketing failures are reported immediately by the TVM to NCTD or its Contractor.

Fact: The failure of TVMs to read a credit/debit card can only be reported by the customer.

Fact: There is no highly visible signage advising of the procedures to report a TVM failure.

Finding 04: Equipment failures cannot be corrected unless they are reported by the customer or by the TVM's electronic communication system.

Fact: The credit/debit card orientation for insertion is shown on the TVM.

Fact: To get a proper read, the credit/debit card must be inserted to the stop then removed at a moderate speed to get the desired result.

Fact: There is little information posted to aid the customer on proper insertion technique.

Finding 05: The TVM does not clearly inform the customer of the protocol for proper credit card insertion.

Fact: If a TVM fails, the customer is not given any screen options to select an alternate course of action.

Finding 06: The TVM does not consistently inform the customer that the machine has failed to perform the requested task.

Fact: Sprinter operating hours begin at 4:00 a.m. and end at 9:30 p.m. on Sunday through Thursday and 12:30 a.m. on Friday and Saturday.

Fact: Coaster operating hours begin at 5:07 a.m. and end at 8:11 p.m. Monday through Friday. On Saturday and Sunday, trains begin to run at 8:30 a.m. and end at 8:12 p.m.

Fact: The Contractor's maintenance and service technicians' normal coverage begins at 6:00 a.m. and ends at 6:00 p.m. seven days each week, with provisions for emergencies.

Finding 07: Maintenance/repair technician coverage is not available during all operating hours of the Coaster and Sprinter unless there is an emergency.

Fact: There are two types of TVM preventive maintenance contractually required by NCTD: monthly and quarterly.

Fact: SCRs provided by NCTD do not indicate which preventive maintenance service was actually provided.

Fact: There is no evidence on the SCRs that each TVM has received the required quarterly preventive maintenance.

Finding 08: There is no distinction between monthly and quarterly preventive maintenance on NCTD-provided SCRs nor is there evidence to support that each TVM has had quarterly preventive maintenance performed.

RECOMMENDATIONS

The 2016/2017 San Diego County Grand Jury recommends the North County Transit District:

- 17-41: Establish clear, reasonable, and measurable TVM performance standards, and require the Contractor to adhere to those standards.**
- 17-42: Provide sufficient signage at TVMs to encourage customers to report all TVM failures to operate.**
- 17-43: Consider upgrading all TVMs to accurately indicate any cause of failure on the screens, and appropriately direct customers to other TVMs.**
- 17-44: Consider upgrading TVMs to electronically transmit all failures to both NCTD and its Contractor.**
- 17-45: Provide adequate signage to direct customers on the proper technique of credit/debit card usage.**
- 17-46: Explore options to extend the Contractor’s TVM technicians’ coverage through all operating hours of the Sprinter and Coaster.**
- 17-47: Require the Contractor to clearly define which type of TVM maintenance procedure (monthly or quarterly) has been accomplished and note it on the Service Call Report.**

17-48: Carefully review the SCRs the Contractor provides to ensure the monthly and quarterly preventive maintenance is accomplished as contractually required.

17-49: Carefully review the Contractor's SCRs to determine, independently, the frequency and types of TVM failures and the actual down-time.

REQUIREMENTS AND INSTRUCTIONS

The California Penal Code §933(c) requires any public agency which the Grand Jury has reviewed, and about which it has issued a final report, to comment to the Presiding Judge of the Superior Court on the findings and recommendations pertaining to matters under the control of the agency. Such comment shall be made *no later than 90 days* after the Grand Jury publishes its report (filed with the Clerk of the Court); except that in the case of a report containing findings and recommendations pertaining to a department or agency headed by an elected County official (e.g. District Attorney, Sheriff, etc.), such comment shall be made *within 60 days* to the Presiding Judge with an information copy sent to the Board of Supervisors.

Furthermore, California Penal Code §933.05(a), (b), (c), details, as follows, the manner in which such comment(s) are to be made:

- (a) As to each grand jury finding, the responding person or entity shall indicate one of the following:
 - (1) The respondent agrees with the finding
 - (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.
- (b) As to each grand jury recommendation, the responding person or entity shall report one of the following actions:
 - (1) The recommendation has been implemented, with a summary regarding the implemented action.
 - (2) The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
 - (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This time frame shall not exceed six months from the date of publication of the grand jury report.

(4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefor.

(c) If a finding or recommendation of the grand jury addresses budgetary or personnel matters of a county agency or department headed by an elected officer, both the agency or department head and the Board of Supervisors shall respond if requested by the grand jury, but the response of the Board of Supervisors shall address only those budgetary or personnel matters over which it has some decision making authority. The response of the elected agency or department head shall address all aspects of the findings or recommendations affecting his or her agency or department.

Comments to the Presiding Judge of the Superior Court in compliance with the Penal Code §933.05 are required from the:

<u>Responding Agency</u>	<u>Recommendations</u>	<u>Date</u>
North County Transit District	17-41 through 17-49	8/29/17