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## *Memorandum*

TO: BATA Oversight Committee

DATE: May 7, 2008

FR: Executive Director

RE: Electronic Toll Collection and Advanced Toll Collection Accounting System (ATCAS) Maintenance Activities Update

Please find attached the quarterly update of the maintenance services for the ATCAS equipment for the state-owned toll bridges. Based on our assessment, the lane equipment performance has continued to improve over the past four months, but is taking an increased level of effort to maintain. Highlights of the in-lane equipment performance are as follows:

- The number of unreadable vehicle license plate images of toll violators continued to drop from 14.7% in November 2007 to 12.9% in March 2008. BATA's maintenance contractor, ACS State and Local Solutions (ACS), has been improving the performance of the lane cameras, which has led to this reduction.
- The performance of the treadle and light curtain systems is meeting expectations and treadle performance has improved compared to the prior year due to ACS maintenance activities. ACS is replacing defective treadles in a timely manner and keeping light curtains clean and clear of debris.
- Several equipment improvements throughout the system occurred in the past four months. These improvements include:
  - The communications network for the San Francisco-Oakland Bay Bridge and Antioch Bridge toll plazas was upgraded to a new high-speed network.
  - Four of the 7 toll plaza server rooms were upgraded with new air conditioners and fire suppression systems.
  - The UPS backup power system at the Carquinez Bridge was upgraded using the UPS unit previously used at the old Benicia Toll Plaza.

We will continue to keep this committee informed of our progress in addressing these issues.

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Steve Heminger

# ATCAS Maintenance Performance Summary

April 30, 2008

## Background:

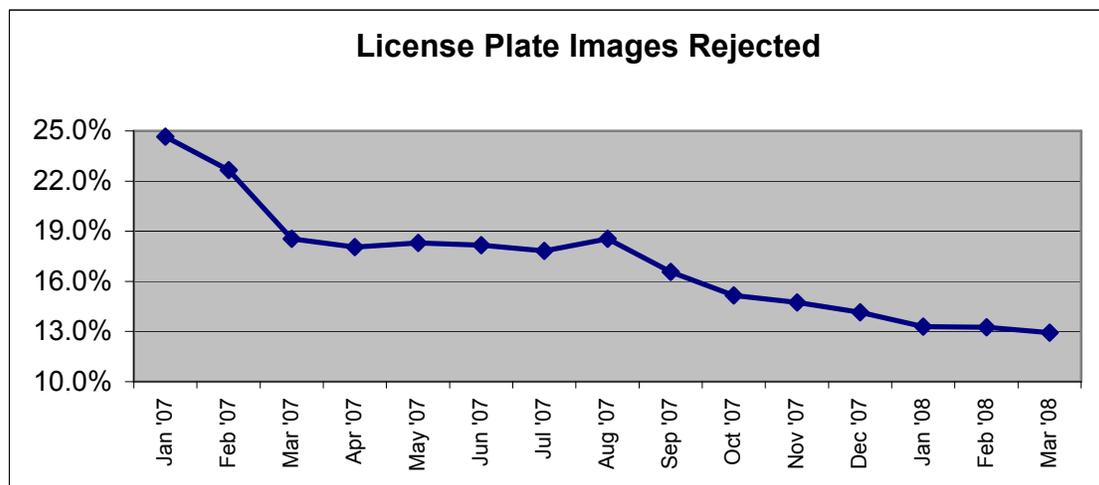
Since September 2005, ACS State and Local Solutions (ACS) has been responsible for preventive and corrective maintenance of the FasTrak® toll collection equipment at the seven state-owned bridges. ACS utilizes six field technicians to maintain equipment designed for manual and automatic toll collection, identification of toll violators along with allowing qualified vehicles (carpool, buses, etc) to pass without paying a toll. All data collected is ultimately transmitted to the Customer Service Center (CSC) for processing. This summary report focuses on statistics BATA uses to measure the performance of the in-lane FasTrak® equipment that, if not functioning properly, could prevent toll collection.

## Equipment Performance:

### Cameras:

Black and white and color cameras are used to capture images of vehicles, and their license plate, as they pass through a toll plaza. Tolls are collected by either deducting payment from an existing FasTrak® account if the plate is a recognized customer or issuing a violation notice to the owner of the vehicle. If a vehicle license plate cannot be read, the image is rejected and payment cannot be collected. Image rejection types include: obstructions, missing plates, misalignment, blurry, corrupt or dark images.

Table 1: License Plate Image Rejections Rate By Month



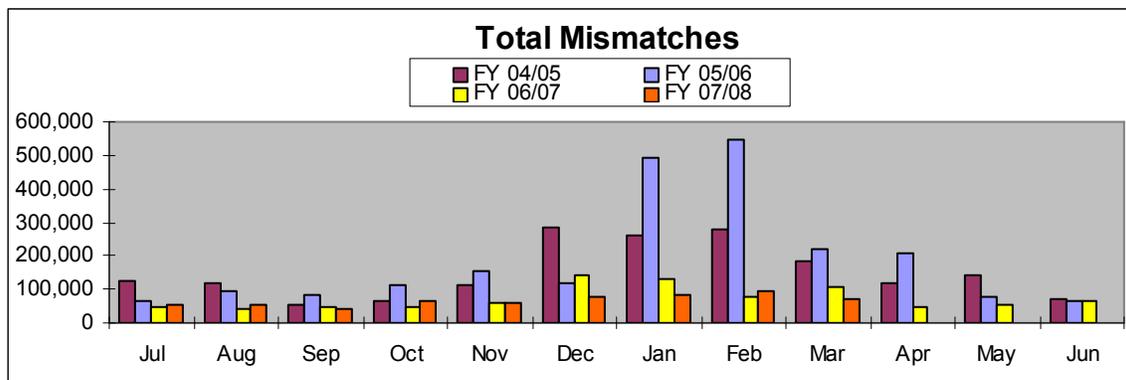
Over the past year, the performance of the violation cameras has significantly improved due to camera replacements and adjustment of associated equipment. As shown above, this has resulted in a decrease of the image rejection rate from 14.7% in November to 12.9% in March. The CSC during their image review process is rejecting fewer violation

images because malfunctioning cameras producing blurry, corrupt or dark images are being fixed. Continued monitoring of camera performance will occur weekly with underperforming cameras targeted for maintenance.

Treadles:

Each time a vehicle passes through the toll lane, an axle count is generated from the in-road treadles. A “mismatch” occurs when the axle classification recorded by the treadles does not correspond with the axle classification recorded by the toll collector in a non-dedicated lane or when no axle information is transmitted to the system in a FasTrak®-only lane. High mismatch counts indicate malfunctioning treadle strips, which can result in the misclassification of vehicles and charging those vehicles an incorrect toll (e.g. charging a truck as a car). In general, treadles can withstand the accumulation of two million axle trips (e.g. about 5.5 months on the San Francisco-Oakland Bay Bridge) before they need replacing. However, treadle performance can be substantially reduced due to outside factors such as poor weather, damage caused by pavement street-sweeping or roadway debris and pooling of rainwater due to improper drainage.

Table 2: Total Mismatches Since July 2004



As shown in Table 2, mismatches for the previous four months (December – March) were lower than mismatch levels in previous years. 28 treadle replacements were performed during those months to ensure mismatches were minimized.

Light Curtain:

Dirty or malfunctioning light curtains can result in vehicles being charged incorrect tolls based on a misread of the number of axles between the entrance and exit light curtains. When light curtains fail multiple vehicles can be misinterpreted as one multi-axle vehicle, which will result in a vehicle being charged the wrong toll. Customers that are incorrectly charged will often dispute the charge, and the number of disputes can be an indication of light curtain performance. Proper preventive maintenance will keep the light curtains clean and clear of any debris.

**Table 3: Multi-Axle Toll Charge Disputes Since May 2007**

Month	Multi-Axle Toll Charge Disputes	Average Days to Report	Total ETC Transactions	% Multi-Axle Toll Charge Disputes
May, 2007	62	43	3,931,080	0.0016%
June, 2007	184	52	3,811,907	0.0048%
July, 2007	73	55	3,823,456	0.0019%
August, 2007	75	50	4,050,073	0.0019%
September, 2007	136	53	3,725,322	0.0037%
October, 2007	171	56	4,107,217	0.0042%
November, 2007	48	46	3,824,710	0.0013%
December, 2007	71	49	3,715,826	0.0019%
<b>Average</b>	<b>134</b>	<b>63</b>	<b>1,048,991</b>	<b>0.0027%</b>

Note: Because a dispute takes an average of 60 days to be reported to the CSC, data for January, February, and March will be released in future reports.

As shown in Table 3, the average number of multi-axle toll charge disputes handled by the Customer Service Center is 134 per month, which represents about .0027% of the average number of ETC transactions that have occurred since October 2005. The number of multi-axle toll charge disputes is relatively minor compared to total transactions.

**Response/Repair Times:**

For ACS to receive full compensation for maintenance services, the monthly average response and repair times for service requests must be less than or equal to the contractually specified response and repair times for the corresponding priority levels. Response time is calculated as the average time interval between the initial notification of a failure and the time a technician arrives on site and can vary significantly due to the time of the incident, traffic conditions or whether spare parts are needed for the repair. Repair time is calculated as the average time interval between when the technician is on site and when the repair has been completed. Since ACS began reporting response and repair time statistics, the monthly average response and repair times have met the contractual requirements.

Table 4: ACS Response and Repair Times Between October 2007 – February 2008

Month	Priority Level 1			Priority Level 2		
	Number of Calls	Response Time (hrs)	Repair Time (hrs)	Number of Calls	Response Time (hrs)	Repair Time (hrs)
October, 2007	7	1:00	2:15	10	0:34	1:21
November, 2007	4	1:51	3:15	21	0:40	1:10
December, 2007	5	1:33	3:32	13	0:38	1:23
January, 2008	6	1:02	0:45	14	1:22	0:45
February, 2008	3	0:30	0:58	6	0:42	0:38
<b>Requirement</b>	<b>N/A</b>	<b>2:00</b>	<b>2:00</b>	<b>N/A</b>	<b>4:00</b>	<b>2:00</b>