



Department of Legislative Services
Office of Legislative Audits

Maryland Transportation Authority (MDTA)

Data Analysis of Electronic Tolling and
Customer Service Processes

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Presentation to Joint Audit and Evaluation Committee

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Report Overview

- MDTA is responsible for managing Maryland's electronic tolling system and customer service processes for the State's nine toll collection facilities, which had toll collections of \$702.6 million in fiscal year 2022.
- Our Special Review was initiated based on various allegations and concerns we received through our fraud, waste, and abuse hotline and from constituent concerns conveyed to us by several members of the Maryland General Assembly.
- Our Special Review covers the period from April 13, 2021 to February 13, 2022. Our analysis included over 430 million detailed transactions, representing over 115 million unique tolling transactions related to over 5 million customers.



Objectives and Conclusions

- **Objective 1** – To determine if MDTA improperly charged tolls to Thomas J. Hatem Memorial (Hatem) Bridge discount plan customers.
 - Our analysis of Hatem Bridge tolls identified approximately \$435,000 in potentially improper toll charges related to 10,474 Hatem discount plan customers that warrant further follow-up by MDTA.

- **Objective 2** – To determine if MDTA improperly charged customers for the same toll twice.
 - Our analysis for all MDTA toll facilities identified 82,847 customers that were potentially charged more than once for a single trip through a toll facility. The toll charges (including both potential duplicate tolls and correct tolls) totaled approximately \$645,000.



Electronic Toll Collection Process

- In February 2018, the Board of Public Works approved two separate contracts totaling \$359.4 million to replace MDTA's prior contractor that provided both the toll collection system and the customer service center.
- MDTA's transition to the new toll collection system started in May 2019 and MDTA made a final transition to the new tolling system and customer service center in April 2021.

Tolling Contractor

- Collects tolling information including reading transponders, capturing images of the vehicle license plates.
- Prepares tolls from the tolling information, performs manual review of issues with images or incomplete tolls.
- Transfers prepared tolls to the Customer Service Contractor.

Customer Service Contractor

- Posts tolls to customer accounts after identifying the correct customer and determining the toll amount, including applying customer discount plans.
- Handles collection of customer payments and applying payments to accounts.
- Provides customer service, including addressing customer complaints and determining if tolls should be dismissed.



Objective 1 Analysis

Background:

- MDTA provides two discount plans for the Hatem Bridge under which customers pay \$20 per year for unlimited trips over the Hatem Bridge for two-axle vehicles.
- If the customer transponder associated with the plan is properly mounted in the vehicle and read by the tolling equipment, no toll will be charged.
- Therefore, if a Hatem Bridge discount plan customer is charged a toll, it represents a problem with either the tolling equipment (MDTA error), the customer not having the transponder properly mounted in the vehicle and/or maintaining a positive account balance (customer error), or a combination of both.



Objective 1 Analysis (continued)

Analysis Objective: To identify Hatem Bridge discount plan customers with potentially improper transactions, we filtered the Hatem Bridge toll transactions that met all four of the following criteria:

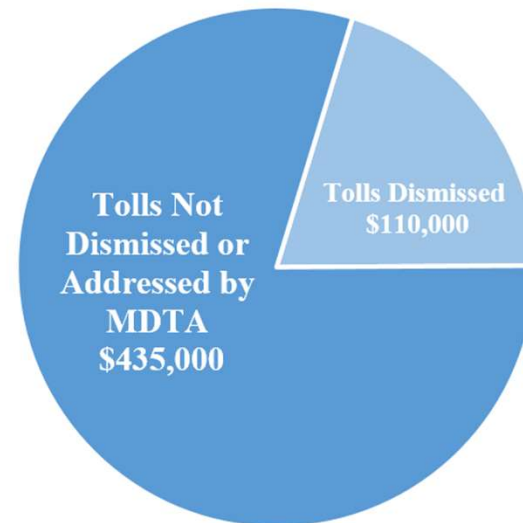
- The customer had an active Hatem Bridge discount plan at the time of the toll.
- The vehicle was two-axle based on the tolling data.
- The same vehicle, based on the license plate, received the discount on other tolls at the Hatem Bridge on the same customer account.
- The discount plan customer did not receive the expected zero dollar toll transaction when traveling the Hatem Bridge, as would be the case if MDTA properly applied the discount plan.



Objective 1 Analysis Results

- Our analysis of the Hatem Bridge tolling data (April 13, 2021 through January 30, 2022), identified about 68,000 potentially improper tolls totaling \$545,000 related to 11,488 discount plan customers.
- No MDTA proactive analysis to identify if Hatem Bridge discount plan customers were erroneously charged tolls.
- MDTA had not investigated or dismissed potentially improper tolls totaling \$435,000 related to 10,474 customers.
- The remaining \$110,000 in tolls were previously dismissed based on customer-initiated disputes.

A Majority of Potentially Improper Hatem Bridge Discount Plan Tollers Were Not Dismissed or Addressed by MDTA

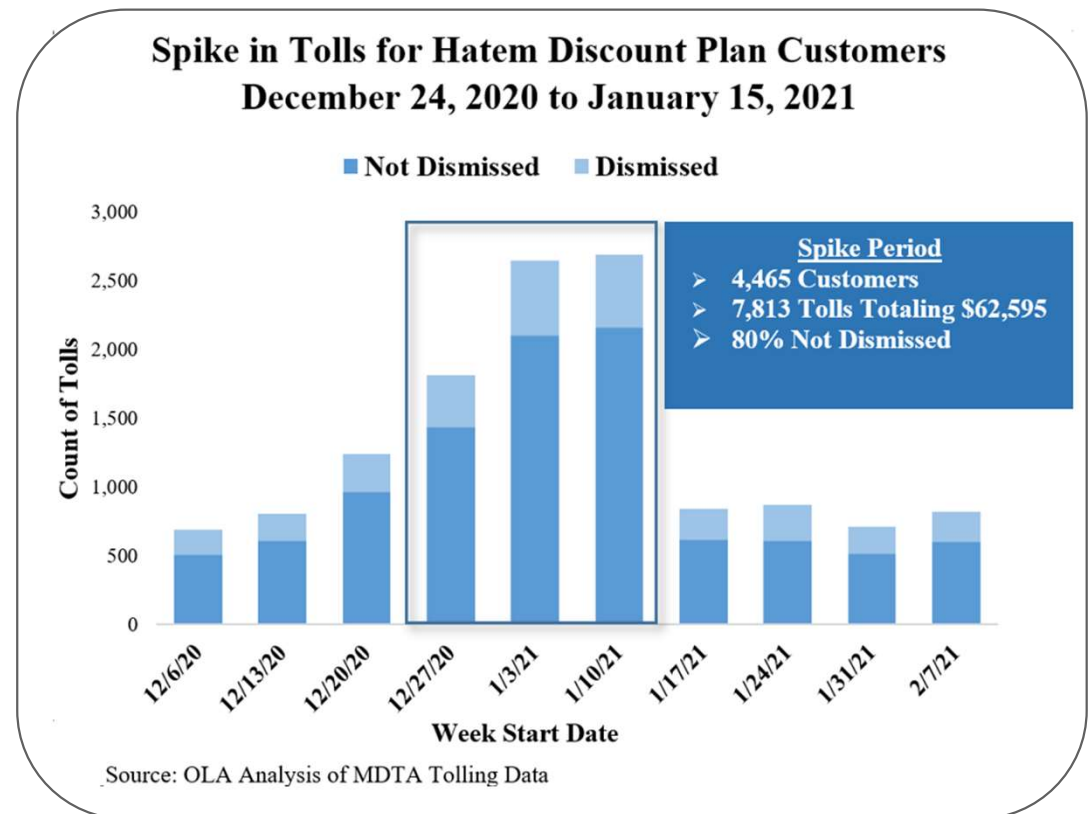


Source: OLA Analysis of MDTA Tolling Data



Objective 1 Analysis Results (continued)

- Our analysis identified a significant spike in tolls charged to Hatem Bridge discount plan customers during the three-week period from December 24, 2020 to January 15, 2021.
- During this period, 4,465 of the 11,488 customers were charged 7,813 tolls totaling \$62,595, for which MDTA had only dismissed \$12,552 based on prior customer-initiated disputes.



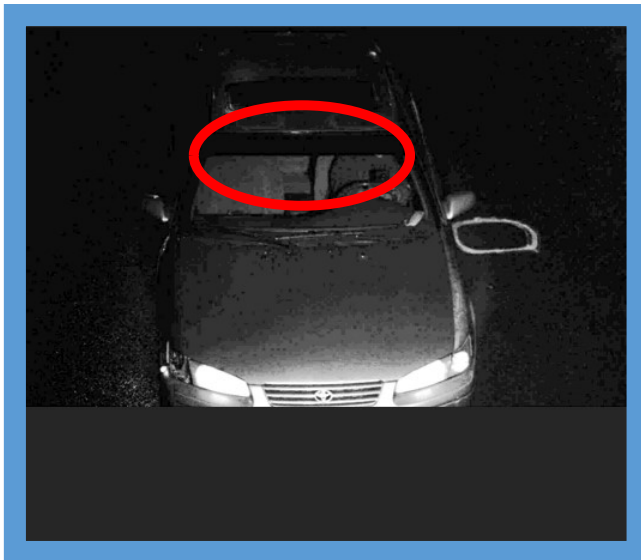


Objective 1 Analysis Test Examples

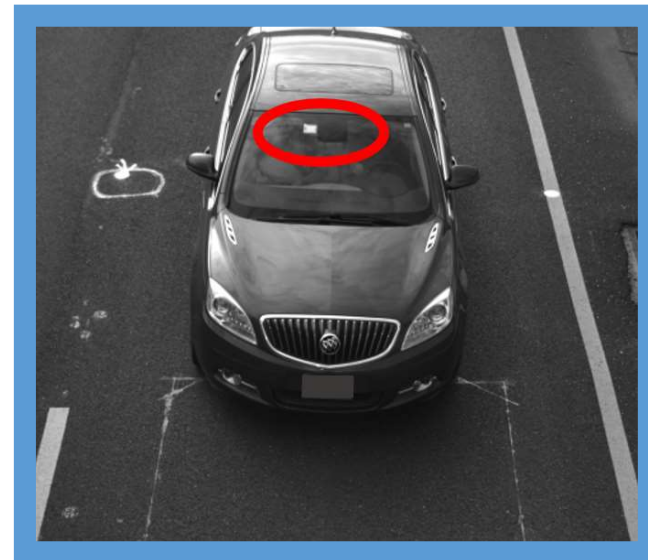
Testing Methodology:

As part of our analysis, we tested 37 of the approximately 68,000 potentially improper tolls. This test included identifying if the customer had a transponder visible and properly mounted based on tolling images.

➤ No Visible Transponder



➤ Transponder Properly Mounted





Objective 1 Tolling Image Review Results

Results of OLA's Review of Tolling Images

Conclusions	Tolls Tested	Tolls Not Dismissed
Transponder was visible and properly mounted based on tolling images (MDTA error).	18	14
Image did not capture some or all of the vehicle, or quality was insufficient to make a clear determination if a transponder was present and properly mounted (MDTA error).	14	11
Transponder was not visible or was not properly mounted in the vehicle based on the tolling images (customer error).	5	5
Total	37	30

Based on our review of the toll images, we believe MDTA would have dismissed 25 tolls relating to 23 customers if the customer disputed them since the transponder was visible or the image was insufficient to determine if the transponder was properly mounted.

Source: OLA Analysis of MDTA Tolling Data



Objective 2 Analysis

Analysis Objective:

To determine if MDTA improperly charged customers for the same toll twice, our analysis was designed as follows:

- Identified scenarios based on consideration of the complaints received through our fraud, waste, and abuse hotline, and review of the data.
 - Developed specific criteria to apply for each scenario to identify potential duplicate tolls, and performed testing of the potential duplicate toll groups and reviewed detailed account and related information for each toll tested in MDTA's source systems.
- **Scenario A:** The customer was charged twice based on the same information for the toll.
 - **Scenario B:** The customer was charged twice based on MDTA misapplying a separate vehicle's toll transaction to the customer.
 - **Scenario C:** The customer was charged twice based on MDTA overlapping toll for a single trip in one direction on the Intercounty Connector (ICC).



Objective 2 Analysis Results

- Based on our analysis, we identified approximately \$645,000 in tolls comprised of 135,495 transaction groupings (for example, one correct transaction and one apparently incorrect transaction for the same customer at a facility) with potential duplicate tolls related to 82,847 customers across all MDTA tolling facilities.
- Our random test of 65 of these customers disclosed 62 of the customers (95 percent) were improperly charged more than once for a single trip through a toll facility.

Summary of Analysis Scenarios with Potential Duplicate Tolls

Analysis Scenario	Transaction Groupings with Potential Duplicate Tolls	Number of Customers ¹	Tolls Charged
Scenario A (all toll facilities)	42,791	31,786	\$198,000
Scenario B (all toll facilities)	66,016	46,633	329,000
Scenario C (only ICC toll facility)	26,688	16,075	118,000
Total	135,495	82,847	\$645,000

¹ The total number of customers is actually 94,494 but this includes 11,647 customers that were in more than one of the scenarios. The total number of customers in the figure reflects the number of unique customers.

Source: OLA Analysis of MDTA Tolling Data



Objective 2 Analysis Examples

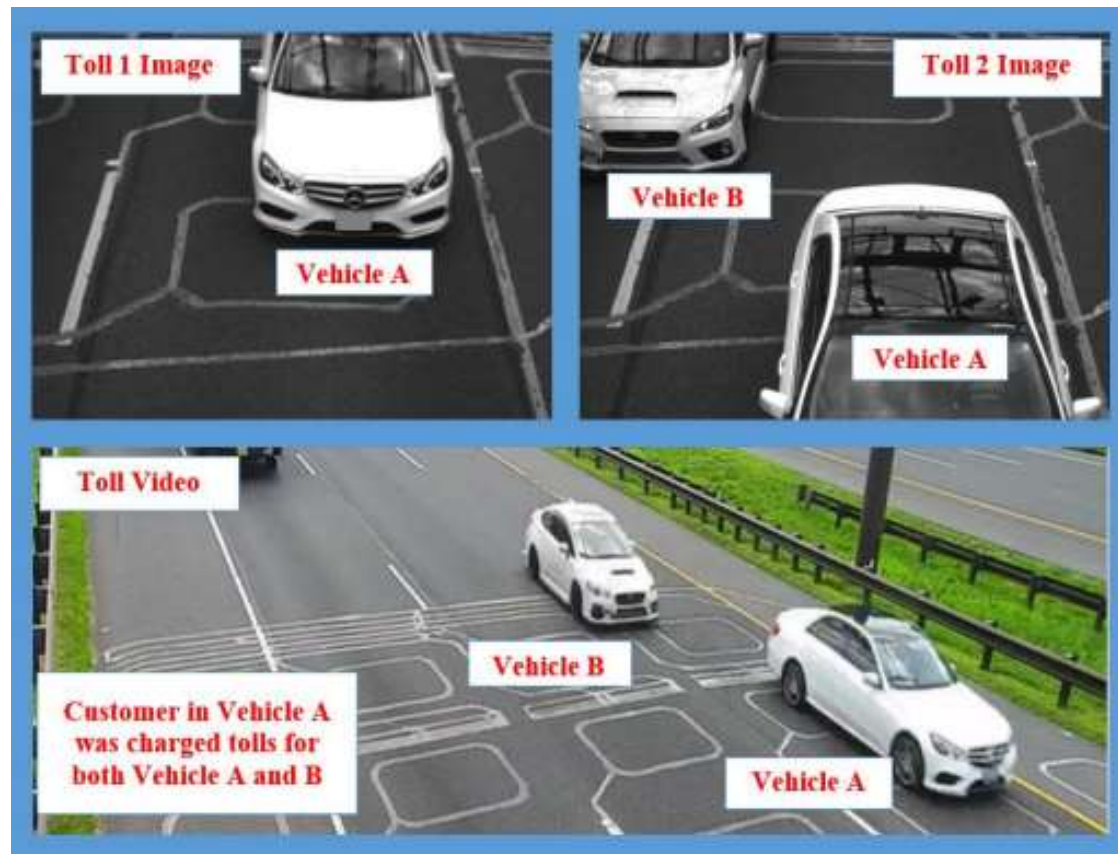
Scenario A Example: The customer was charged twice based on the same information for the toll (vehicle, time of day, and toll facility).





Objective 2 Analysis Examples (continued)

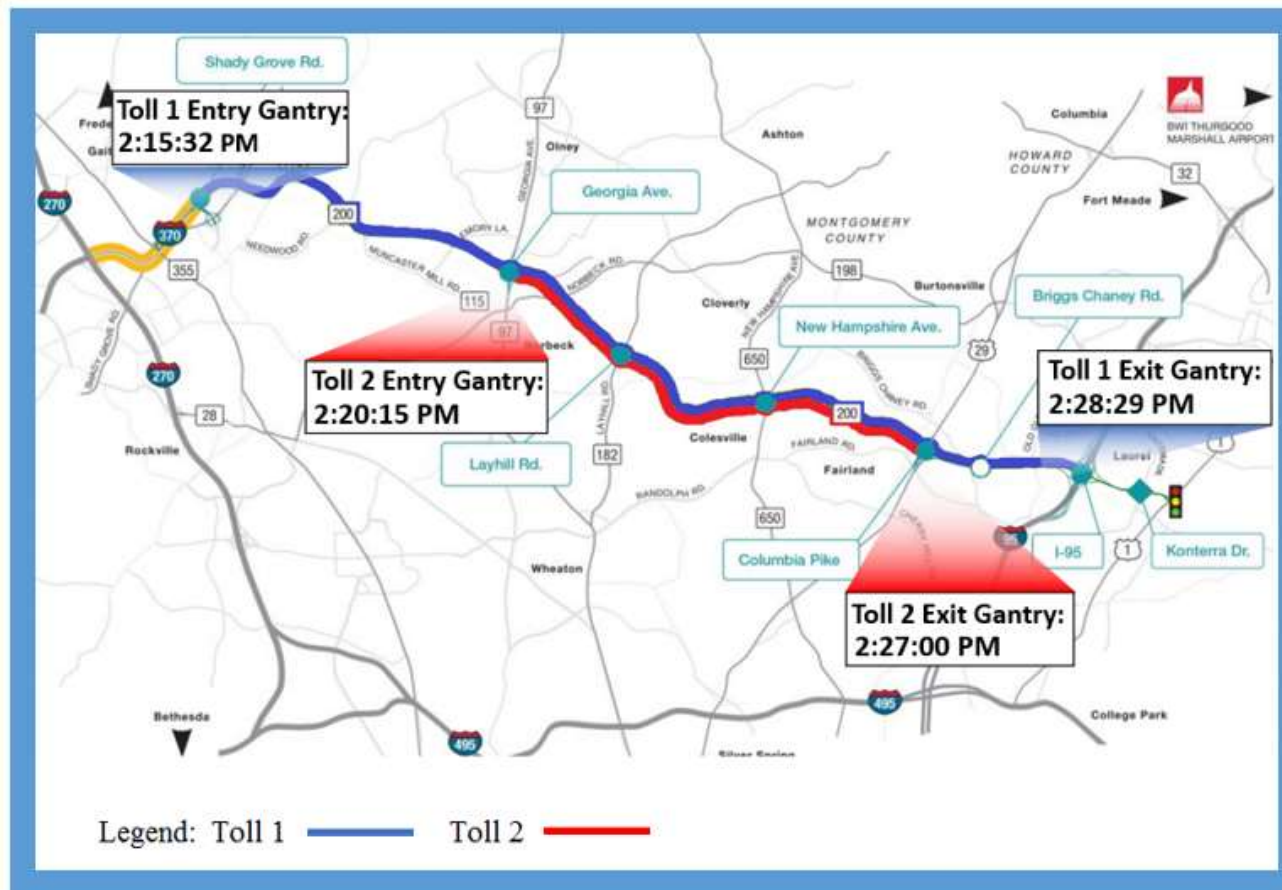
Scenario B Example: The customer was charged twice based on MDTA misapplying a separate vehicle's toll transaction to the customer.





Objective 2 Analysis Examples (continued)

Scenario C Example: The customer was charged twice based on MDTA overlapping toll for a single trip in one direction on the ICC.





Conclusion

- We believe MDTA should proactively perform similar data analysis periodically to ensure the continued accuracy of its systems and processes and the appropriateness of customer toll charges.
- Corrective actions taken by MDTA regarding customer tolling accuracy will be subject to review during our next fiscal compliance audit of MDTA scheduled to begin in 2024.
- We note that our analysis showed a marked improvement in timeliness of transaction posting from an average of 279 days pre-April 2021 to a 20-day average after that date. Untimely transaction posting had been a source of frustration expressed by the motoring public when we initiated our review.