

Final  
Report

# Follow-Up Review: Preventative Maintenance and Compressed Natural Gas Tank Inspections of Ride-On Buses

Report # OIG-17-006

March 20, 2017

Follow-Up on Previously  
Issued OIG  
*Report OIG-15-003*

Preventative Maintenance and Compressed Natural Gas Inspections of  
Ride-On Buses (November 20, 2014)

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Montgomery County, Maryland  
Office of the Inspector General



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# Follow-Up Review: Preventative Maintenance and Compressed Natural Gas Tank Inspections of Ride-On Buses

March 20, 2017

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## Background

In a November 20, 2014 Advisory Memorandum, *Preventative Maintenance and Compressed Natural Gas Inspections of Ride-On Buses*, the Office of the Inspector General (OIG) recommended that Department of General Services' (DGS) management should verify the Fleet Management Services (FMS) assertions regarding their most recent compliance and take actions to ensure both immediate and ongoing FMS compliance with Preventative Maintenance (PM) and Compressed Natural Gas (CNG) tank inspection regulations.

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## Why We Did This Review

The OIG conducts follow-up reviews to verify that pledged actions have been taken and were effective in correcting reported deficiencies. Montgomery County officials and managers are responsible for implementing the corrective actions that they have agreed to undertake in response to the audit report.

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## What We Found

For a 20-month period beginning November 2014 and ending June 2016, both preventative maintenance inspections and CNG tank inspections were not conducted on-time. We confirmed there was sufficient evidence to support that FMS did perform preventative and CNG Tank inspections in accordance with FMS guidelines; however, we determined preventative maintenance and CNG tank inspections were conducted at a rate of 74 percent and 71 percent respectively, which are both below FMS' compliance rate of at least 80 percent. Our review found that FMS has made improvements in relation to reported conclusions documented in our prior year report.

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## What We Recommend

We recommend that DGS implement the following: (1) require FMS to identify the causes precluding preventative maintenance inspections and CNG tank inspections from occurring on-time, (2) develop a plan to correct and address FMS' identified causes that impact its ability to conduct inspections on-time, and (3) require FMS' TQA unit to conduct periodic reviews to test compliance with on-time regulations of both PM and CNG Tank inspections.

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# Follow-Up Review: Preventative Maintenance and Compressed Natural Gas Tank Inspections of Ride-On Buses

## Introduction

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On November 20, 2014, the Office of the Inspector General (OIG) issued a Final Advisory Memorandum, *Preventative Maintenance and Compressed Natural Gas Inspections of Ride-on Buses*, to the Director, Department of General Services (DGS). The report addressed complaints the OIG received related to non-compliance with County, State, and Federal requirements for Montgomery County Ride-On Buses in areas of preventative maintenance and compressed natural gas (CNG) inspections conducted by Fleet Management Services (FMS) within DGS.

The OIG found in 2014 that preventative maintenance inspections and CNG tank inspections for Ride-On Buses had not been performed in compliance with established mileage requirements. We issued two findings: (1) FMS did not conduct preventative maintenance inspections of the Ride-On Bus fleet at the mileage intervals required, and (2) FMS did not conduct CNG inspections of the Ride-On Bus fleet at the mileage intervals required. We reported that inspections occurred below the 80 percent compliance requirement established by FMS. FMS asserted that, as a result of its own testing, they obtained an 81 percent rate of compliance of inspections performed.

The Chief Administrative Officer (CAO) agreed with our findings, citing several corrective measures that have been taken to meet inspection requirements going forward. The CAO provided that in order to meet preventative maintenance requirements, the Division Chief established a dedicated training and quality assurance unit and developed a standardized preventative maintenance program for all maintenance shops to follow. Additionally, the CAO stated that DGS created a standard operating procedure for CNG tank inspection and awarded a contract to a certified CNG tank inspector.

In light of these findings with respect to preventative maintenance, the OIG recommended that DGS management verify FMS' assertions regarding its recent compliance and take actions to ensure both immediate and ongoing FMS compliance with preventative maintenance and CNG tank inspection regulations.

## Objectives, Scope, and Methodology

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The objective of our review was to determine whether sufficient corrective measures have been taken based on our recommendations.

Our audit scope covered the period from November 2014 through June 2016.

To accomplish our objectives, we:

- Reviewed the OIG prior year report “Preventative Maintenance and Compressed Natural Gas Inspection of Ride-On Buses”;
- Conducted interviews with FMS management and personnel;
- Reviewed FMS’ performance for compliance with relevant laws, policies, and procedures;
- Documented the process for conducting preventative maintenance inspections and CNG tank inspections;
- Reviewed the contract for CNG tank inspections;
- Analyzed preventative maintenance inspection and CNG tank inspection data;
- Reviewed preventative maintenance service checklists and CNG service checklists; and
- Determined whether internal controls were in place to prevent or detect material errors and irregularities.

We relied on computer-processed data from FMS’ Faster System. Although we did not perform a formal reliability assessment of computer-processed data, we performed audit procedures to verify the accuracy of the information.

We conducted this audit in accordance with *Government Auditing Standards* issued by the U.S. Government Accountability Office, and *Principles and Standards for Offices of Inspector General* issued by the Association of Inspectors General.



Those standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives.

## Background

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Montgomery County's FMS is an integral part of DGS and provides all vehicle and transportation services for the Montgomery County government. FMS operates one of the largest government vehicle fleets in the State of Maryland consisting of 3,231 vehicles. These vehicles serve the transportation needs of five County business groups that represent 30 individual departments. FMS operates around the clock to ensure continued service to the County.

FMS' goal is to be a "one-source" organization that provides all essential vehicle services including acquisition and disposal, preventative maintenance, repairs, regulatory compliance, maintaining pool vehicles, and refueling services. FMS consists of five business units: asset management, vehicle maintenance, fuel management, pool vehicles, and administration. FMS has approximately 200 staff members, operates five shops in four main facilities, six satellite depots, and 11 fuel sites that provide support for the County's vehicle fleet. FMS' transit shops in Silver Spring, Kensington, and Gaithersburg maintain the bus fleet for Ride-On transit service. FMS manages and maintains approximately 348 Ride-On buses, of which 106 are CNG powered.

Ride-On transit is the largest Maryland Transit Administration (MTA) locally operated transit system. MTA is the Federal Transit Administration's (FTA) designated recipient for Maryland's 5307<sup>1</sup> funding and administers all Ride-On federal and state grants. Ride-On's compliance with FTA regulations is monitored by MTA. In order for MTA to receive Ride-On funding from FTA, FMS must comply with preventative maintenance requirements.

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<sup>1</sup> 49 U.S.C. Section 5307 makes federal resources available to urbanized areas and to governors for transit capital and operating assistance in urbanized areas and for transportation related planning.

FMS provides non-scheduled and scheduled maintenance and repair services to the County's Ride-On buses. Non-scheduled repairs include service needs such as flat tires, dead batteries, headlights out, and other unforeseen mechanical breakdowns. Scheduled maintenance or preventative maintenance (PM) is planned maintenance of equipment with the goal of improving equipment life, thus preventing excess depreciation and impairment.

PM encompasses all of the activities, supplies, materials, labor, services, and associated costs required to preserve or extend the functionality and serviceability of an asset. PM inspections of all buses in the Ride-On fleet are scheduled based on mileage accumulated in intervals of 6,000 miles. According to FMS policy, the acceptable variance of mileage-based inspections is up to 10% of 6,000 miles (not to exceed 6,600 miles). When scheduled inspections occur at intervals between 6,000 and 6,600, the inspections are considered "on-time"; therefore, they were conducted within the stipulated guidelines.

FMS' policy provides for four types of PM inspections; characterized as: (1) PMA, (2) PMB, (3) PMC, and (4) PMD. Each of the four inspection categories has certain requirements that must be conducted during the PM inspection. The following table identifies the specific PM inspection tasks for each interval:

Inspection	Interval	Preventive Maintenance Tasks
<b>PMA</b>	6,000 Miles	Steam clean and road test, driver's compartment, followed by the passenger compartment, exterior inspection, engine, transmission, and chassis inspection. Inspection and lubrication of the wheelchair lift is performed as part of the PMA.
<b>PMB</b>	12,000 Miles	The PMB task list includes everything listed on the PMA as well as servicing the hydraulic system, HVAC system, wheelchair ramp, and replacing the fuel filters.
<b>PMC</b>	24,000 Miles	The PMC task list includes everything listed on the PMB as well as checking the crankcase breather and changing the fuel and coolant filters.
<b>PMD</b>	48,000 Miles	The PMD task list includes everything listed on the PMC as well as servicing the transmission, hydraulic system, front wheel bearings, rear axle service, as well as checking the crankcase breather, and changing the fuel and coolant filters. Compressed natural gas and gasoline buses may receive a new set of spark plugs at this time.

As part of the County's Green Fuel Alternatives, the County uses a combination of alternative fuels to help reduce its petroleum consumption and greenhouse gas emissions. As previously stated, FMS manages and maintains approximately 106 Ride-On buses that are powered by CNG. CNG is a natural gas under pressure, which remains clear, odorless, and non-corrosive.

Before CNG tanks can be used, they must be US Department of Transportation (DOT) approved. Safety inspections of CNG tanks are conducted at 36 months or every 36,000 miles, whichever comes first, checking for damage and deterioration per manufacture's recommendations. FMS often performs CNG tank inspections and PM inspections during the same shop appointment.

## Status of Prior Year Findings and Recommendation

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Our prior report provided DGS with two findings and one recommendation.

We recommended that DGS management verify the FMS assertions regarding its most recent compliance and take actions to ensure both immediate and ongoing FMS compliance with preventative maintenance and CNG tank inspections regulations.

**Status:** DGS management has taken steps to guide FMS on conducting preventative maintenance and CNG tank inspections of Ride-On Buses in accordance with regulations. However, these steps have not been sufficient to ensure preventative maintenance and CNG tank inspections were conducted on-time.

**Prior Year Finding 1** – FMS did not conduct preventative maintenance inspections of the Ride-On Bus fleet at the mileage intervals required.

**Status:** PM inspection requirements continue not to be achieved. FMS implemented standardized preventative maintenance policies and procedures for the three maintenance shops that service Ride-On buses. FMS created the Training and Quality Assurance Unit (TQA) to provide a centralized technical training group, conduct new technician assessment and training, create standardized PM task work procedures, provide hands-on training for technicians, and review work performed after training. Additionally, TQA has created and updated all of the PM procedures and checklists.

**Prior Year Finding 2** – FMS did not conduct CNG inspections on the Ride-On bus fleet at the mileage intervals as required.

**Status:** CNG tank inspection requirements continue not to be achieved. FMS created and implemented standard operating procedures for CNG tank inspections, and initiated a statement of work with the County’s existing vehicle maintenance contract. The contractor sub-contracted tank inspections out to a Certified CNG Tank Inspector.

## Finding & Recommendations

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This report provides one Finding and associated Recommendations.

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### **Finding 1: FMS Did Not Conduct Preventative Maintenance and CNG Tank Inspections of the Ride-On Bus Fleet On-Time**

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The fleet of Ride-On buses is not receiving PM inspections or CNG tank inspections on-time. FMS’ requirement is to conduct inspections within a stipulated period, which will determine their status as “on-time” or “late” inspections. We determined that PM inspections and CNG tank inspections were conducted at a rate of 74 percent and 71 percent respectively, which are both below FMS’ compliance rate of 80 percent. PM and CNG tank inspections are considered on time if they are conducted between 6,000 and 6,600 miles, and 36,000 miles respectively.

According to FMS officials, one of their biggest obstacles to performing on-time inspections is the need to use a bus that is scheduled for inspection to satisfy the number of buses required for daily County operation per Ride-On operational requirements, as well as the availability of needed parts for repairs. FMS explained that these situations are unavoidable but have a major effect on its ability to conduct scheduled inspections.

In the event that inspections are not provided within guidelines, FMS cannot ensure that Ride-On buses are being maintained to preserve or extend the functionality and serviceability of Ride-On buses nor for the safety of Ride-On passengers. Additionally, the County’s ability to receive Ride-On program funding from MTA could be at risk.

## Preventative Maintenance

Montgomery County's FMS is responsible for providing comprehensive maintenance to transit buses. FMS is required to maintain these vehicles in compliance with state and federal inspection regulations. FMS operates three maintenance facilities dedicated to providing maintenance as well as PM for approximately 348 Ride-On Buses<sup>2</sup>. The three maintenance shops specialize in providing maintenance to specific types of buses, as follows:

- Equipment Maintenance and Transit Operations Center Facility (EMTOC), Gaithersburg – maintains approximately 136 buses, (diesel and compressed natural gas type buses);
- Small Transit Shops Facility (STS), Nicholson Court – maintains approximately 69 buses (diesel); and
- Brookville Maintenance Facility (BMF), Silver Spring – maintains approximately 143 buses (diesel and diesel/hybrid)

FMS maintains monthly reports for each maintenance shop that provide information such as equipment number, PM cycle conducted, work order #, PM due at intervals, PM conducted at intervals, and month of inspection. We used a population of 20 months of FMS' records, PM inspection checklists, and work orders to validate that PM inspections were actually conducted. Our test was comprised of a sample of 87 records of PM inspections that occurred between November 2014 and June 2016. There were 4,392 records in our population that included all PM inspections that FMS provided, which differs from the population used to determine on time or late PM inspections that are discussed below. Our sample size was 87 records, which equates to 2 percent of the total population.

FMS was able to supply records indicating the outcome of inspections; what was repaired, and if additional repairs might have been warranted. As a result, there was evidence that FMS did complete the 87 PM inspections of Ride-On buses.

To determine if FMS was conducting PM inspections in compliance with regulations we combined the 20 months of PM inspection reports for each of FMS' three maintenance shops into one spreadsheet for each maintenance shop<sup>3</sup>. The data was sorted by equipment number;

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<sup>2</sup> Data pertaining to the number of buses was provided by FMS in its Transit Maintenance Plan., dated 8/6/16.

<sup>3</sup> Our testing encompassed the entire population of inspections conducted for a 20-month period per data supplied by FMS.

after which, the sorted data was analyzed to determine the mileage intervals in which preventative maintenance was conducted. For each bus we subtracted the mileage on the second PM inspection from the mileage on the first PM inspection to determine the mileage interval, then we subtracted the mileage from the third PM inspection from the mileage from the second PM inspection to determine the next mileage interval, and so on for all of the PMs for a specific bus.

The results of this step showed how many miles were between PM inspections. Our initial analysis found the following conditions: (1) PM inspections did not occur at 6,000 mile intervals, (2) there were two or fewer PM inspections<sup>4</sup>, (3) PM inspection mileage amounts were out of sequence, and (4) PM inspections were conducted past the 6,600 mile interval mark.

As a result, we met with FMS officials, which included the TQA unit, to discuss the conditions found, and our methodology to ensure that the conditions documented were not based on a flawed misunderstanding of the provided PM report data. In response to our prior year report, we were told that a dedicated TQA unit was established to help with FMS' compliance with standards, to include standardizing PM inspection work procedures, conduct technician training, and generate daily reports identifying buses on target for PM inspections.

We shared with FMS representatives our spreadsheets and analysis explaining how we determined what constituted an exception. We explained what steps we took in analyzing the data, and how we developed the identified conditions. We asked FMS to provide explanations to these conditions. We provided FMS with copies of our electronic spreadsheets to aid them with their research, enabling them to provide detailed explanations to our noted exceptions. FMS provided explanations to some of our exceptions, which included the following: (1) bus was in an accident, (2) speedometer changed, (3) training bus, and (4) bus taken out of service.

FMS' review consisted of combining all of our PM inspection spreadsheets from all shops into one spreadsheet. We, in turn, combined our spreadsheets as FMS had done for consistency, and then we conducted a side-by-side comparison to ensure that FMS had not included any data that was not initially provided. Our review found that FMS had not included any additional PM inspections that were not initially provided for our review.

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<sup>4</sup> This exception pertains to buses over a 20-month period having less than two inspections when the average monthly mileage is 4,266.

Our second analysis took into consideration the explanations that FMS provided to our issues initially identified. Our calculations to determine the percentage of PM inspections that were conducted on time used only PM inspections that appeared to be reasonably documented (meaning that mileage accumulations were reasonably constant) increasing monthly or as PMs were due. If a PM inspections mileage was out of sequence, the PM inspections were not included in our on-time calculation; as these were instances where FMS' record keeping or data input into the FASTER system were problematic. Also, buses that were new and only had one PM inspection were not included in our calculation.

Our calculation to determine the percentage of on-time PM inspections was based on 3,458 records. Of that amount, our testing found that 904 PM inspections were not conducted within the allotted mileage intervals of 6,600 miles. Our current results were based on the entire population of PM inspections conducted for a 20-month period of all three maintenance shops.

As a result, FMS' on-time PM inspection rate was approximately 74 percent. FMS' own maintenance objective is to conduct on-time PM inspections at a rate of at least 80 percent. Our prior report found that FMS was conducting on-time PM inspections at a rate of 65 percent. While there has been some improvement, FMS is still below its established minimum of 80 percent of on-time PM inspections.

We shared our results with FMS officials, who stated that often it is out of their control that inspections were not conducted as scheduled. FMS explained that not only are PM inspections required to be conducted within regulations, FMS is also required to have a certain number of buses operating daily per MTA regulation. In the event that a bus is scheduled for an inspection but the number of buses needed for daily operations is low, FMS officials may need to make the decision to keep a bus in production versus pulling it for scheduled PM and CNG tank inspections. This action can ultimately affect on-time inspection percentages.

### **Compressed Natural Gas Tank Inspections**

FMS is assisting in Montgomery County's effort to reduce harmful emissions. FMS purchased environmentally compliant vehicles including buses for the County's mass transit system, Ride-On Buses. Within FMS' fleet of Ride-On buses, some are powered by CNG. CNG is a readily available alternative to gasoline consisting mostly of methane; CNG is odorless, colorless, and tasteless. The CNG tank inspections follow National Fire Protection Association (NFPA) 52: Vehicular Natural Gas Fuel Systems and Compressed Gas Association (CGA) C-7 guidance on using and maintaining CNG tanks.

FMS maintains approximately 106 CNG Ride-On Buses, about one-third of the Ride-On inventory. To ensure the safety of passengers, CNG tanks require periodic inspection. FMS has implemented a policy that CNG tank preventative maintenance inspections are to occur every 36 months or 36,000 miles, whichever comes first.

CNG buses are primarily maintained at the EMTOC in Gaithersburg. FMS uses a contractor to conduct CNG tank inspections. We conducted a test to determine if FMS could provide evidence that inspections of CNG tanks occurred. We reviewed a sample of 28 records of CNG tank inspections, which were 10 percent of the total population of inspection reports provided by FMS. Our review determined that there was evidence of the CNG tank inspections occurring for Ride-On Buses fueled with CNG. FMS was able to supply a record for all 28 inspections, indicating the outcome of the inspection, what was repaired, and if additional repairs might have been warranted.

We also reviewed documentation of tank inspections from November 2014 through June 2016. This documentation was analyzed to determine that CNG tanks were inspected within FMS' guidelines. The reports listed the work order #, equipment #, and mileage when inspection occurred. As a result of our initial review of the provided data, we documented issues that resulted in our need to obtain explanations to our noted exceptions from FMS pertaining to the provided data. The conditions documented were as follows: (1) less than one inspection (2) mileage out of sequence, (3) inspection did not occur with mileage guidelines, and (4) mileage appears to be inaccurate.

We provided FMS with a copy of our spreadsheet for their review to provide explanations to our documented exceptions. FMS provided an updated data set of CNG inspection reports. We analyzed the updated document to determine if inspections were occurring at intervals of 36,000 miles with an allowance of 10 percent over 36,000 miles, which equates to 39,600 miles.

Our calculation to determine the percentage of on-time CNG tank inspections was based on 173 records, of that amount our testing found that 50 tank inspections were conducted after the allotted mileage period and 123 inspections were conducted within allotted mileage intervals.

As a result, FMS' rate of on-time CNG tank inspections calculated to 71 percent. FMS' own inspection objective is to be at a rate of at least 80 percent on-time inspections. Our prior year report found that on-time CNG tank inspections were at a rate of 39 percent.



## Conclusion

Our review found that FMS has processes in place such as uniform policies and procedures to be followed for performing PMs and CNG tank inspections, trained staff, a TQA unit, a CNG contractor, and a reliable records database to ensure the inspections were conducted on-time. However, FMS failed to be in compliance with on-time regulations.

While FMS implemented our prior year recommendations, which resulted in improved percentages of on-time PM inspections and CNG tank inspections, there remains an issue with compliance of completing on-time inspections 80 percent of the time.

In the event that inspections are not provided within guidelines, FMS cannot ensure that Ride-On buses are being maintained to preserve or extend the functionality and serviceability of Ride-On buses nor for the safety of Ride-On passengers. Additionally, the ability to receive Ride-On program funding from MTA could be at risk.

## Recommendations

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We recommend that DGS implement the following:

- (1) Require FMS to identify the causes precluding preventative maintenance inspections and CNG tank inspections from occurring on-time.
- (2) Develop a plan to correct and address FMS' identified causes that impact its ability to conduct inspections on-time.
- (3) Require FMS' TQA unit to conduct periodic reviews to test the compliance with on-time regulations of both PM and CNG Tank inspections.

## Summary of the Chief Administrative Officer's Response

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The response from the Montgomery County Chief Administrative Officer (CAO) to the final draft report is included in its entirety in Appendix A.

The CAO agreed with our recommendations. Nothing in the response caused us to alter our report.

# Appendix A: Chief Administrative Officer's Response



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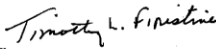
Isiah Leggett  
County Executive

Timothy L. Firestine  
Chief Administrative Officer

## MEMORANDUM

March 17, 2017

TO: Edward L. Blansitt, Inspector General

FROM: Timothy L. Firestine, Chief Administrative Officer 

SUBJECT: Response to Confidential Final Draft: Follow-Up Review: Preventative Maintenance and Compressed Natural Gas Tank Inspections of Ride On Buses

I am in receipt of your Confidential Final Draft: Follow-Up Review: Preventative Maintenance and Compressed Natural Gas Tank Inspections of Ride On Buses. We agree with the recommendations and have already implemented them. Following are the answers to the Draft's recommendations:

**Recommendation 1: Require FMS to identify the causes precluding preventative maintenance inspections and CNG tank inspections from occurring on time.**

**CAO Response:** The target compliance rate set for Fleet Management Services (FMS) to conduct Preventative Maintenance (PM) inspections and Compressed Natural Gas (CNG) tank inspections within a stipulated period is 80 percent. The stipulated period for PM inspections is between 6,000 and 6,600 miles, and CNG tank inspections are to be performed every 36,000 miles. OIG found that in 2014 inspections were conducted at a rate of 74 percent and 71 percent, respectively. The PM compliance rate of 80 percent is an FTA requirement but there is no guideline for CNG tank inspections. The 80 percent target for tank inspections was created only to be consistent, but there is no industry guideline or 'best practice' insofar as we know.

FMS staff identified several causes that hinder the ability to perform a scheduled inspection: (1) a bus scheduled for inspection may need to remain in service to meet the Ride On bus count, (2) unavailability of parts for older buses prolongs a PM process creating a ripple effect on scheduling, and (3) vehicle unavailability due to accidents. A revision to the PM process lengthened each inspection, affecting the compliance rate. However, it also resulted in improved vehicle performance, reliability, and an improved "mean distance between failure." CNG tank inspections are performed by a third party who requires a minimum number of buses per inspection.

**Recommendation 2: Develop a plan to correct and address FMS' identified causes that impact its ability to conduct inspections on-time.**

**CAO Response:** Following the 2014 OIG report, DGS implemented measures to address compliance including staffing a Total Quality Assurance (TQA) unit, and developing procedures and practices to ensure that inspections are performed on time. The report indicates that the PM inspection rate increased from the prior OIG report from 65 percent to 74 percent over the 20-month period of November 2014 through June 2016. While the

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## Appendix A: Chief Administrative Officer's Response

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PM compliance rate *averaged* 74 percent over the reporting period, the improvement is even more significant when comparing end-of-period performance to that of the beginning. Specifically, the compliance rate from November 2014 through July 2015 was 65 percent while performance from July 2015 through June 2016 increased to 90 percent. CNG tank inspection compliance also increased significantly by 82 percent, from 39 percent to 71 percent.

This improvement is attributed to several newer vehicles being introduced into in the fleet, implementing improved processes, and incorporating the TQA in the new vehicle acceptance review. FMS also established part kits for the new units; worked directly with vendors to ensure sufficient parts inventory to support the fleet; and implemented vendor specific training focusing on common bus out-of-service issues.

The corrective actions implemented by DGS have been effective, as demonstrated by the significant improvement for PM inspections and CNG tank inspections. However, transit operational needs may continue to prevent full compliance at the 80 percent guideline. DGS reviewed the internally set CNG tank inspection interval of 36,000 miles. This interval is derived from an automotive application that FMS applies to buses. FMS is now using the automated PM scheduler to schedule tank inspections based on routine maintenance intervals. The result is that tank inspections are now triggered at 24,000 miles, well less of the automotive guideline, and provides for a cushion in scheduling with the third-party inspector to ensure inspections take place prior to the 36,000 goal. Current target compliance exceeds 90 percent.

**Recommendation 3: Require FMS' TQA unit to conduct periodic reviews to test the compliance with on-time regulations of both PM and CNG Tank inspections.**

**CAO Response:** As stated above, only PM inspections are based on a regulatory requirement. The tank inspection target is based on an automotive guideline. TQA is now conducting monthly mileage reviews of all CNG buses. Mileage reports are reviewed daily to achieve timely PM compliance, which now averages over 95 percent. Nevertheless, operational needs, or other interruptions to the routine as addressed above, may prevent 100 percent compliance. DGS has implemented recommendations from the previous update resulting in the significant improvement to the rate of timely inspections, and the TQA unit continues to monitor PM and CNG tank inspection.

Thank you again for your work on this Draft. If you have questions, please contact David E. Dise at (240) 777-6191 or David.Dise@montgomerycountymd.gov.

TLF:ad

cc: Fariba Kassiri, Assistant Chief Administrative Officer  
David E. Dise, Director, Department of General Services  
Beryl L. Feinberg, Deputy Director, Department of General Services  
Keith Stickley, Operations Manager, Division of Fleet Management Services  
Calvin Jones, Equipment Manager, Division of Fleet Management Services

## Appendix B: Acronyms

BMF	Brookville Maintenance Facility
CAO	Chief Administrative Officer
CNG	Compressed Natural Gas
DGS	Department of General Services
DOT	US Department of Transportation
EMTOC	Equipment Maintenance and Transit Operations Center Facility
FMS	Fleet Management Services
FTA	Federal Transit Administration
MTA	Maryland Transit Administration
OIG	Office of the Inspector General
PM	Preventative Maintenance
STS	Small Transit Shops Facility
TQA	Training and Quality Assurance Unit

