AUDITOR GENERAL'S DEPARTMENT
PERFORMANCE AUDIT REPORT

JAMAICA FIRE BRIGADE (JFB)

The Auditor General is appointed by the Governor General and is required by the Constitution, Financial Administration and Audit Act, other sundry acts and letters of engagement, to conduct audits at least once per year of the accounts, financial transactions, operations and financial statements of central government ministries and departments, local government agencies, statutory bodies and government companies.

The Department is headed by the Auditor General, Pamela Monroe Ellis, who submits her reports to the Speaker of the House of Representatives in accordance with Section 122 of the Constitution of Jamaica and Section 29 of the Financial and Administration and Audit Act.

This report was prepared by the Auditor General's Department of Jamaica for presentation to the House of Representatives.

Auditor General of Jamaica
Auditor General's Department
40 Knutsford Boulevard
Kingston 5, Jamaica, W.I.
www.auditorgeneral.gov.jm

Table of Contents

This page was intentionally left blank

Auditor General's Overview

The Jamaica Fire Brigade (JFB) is a statutory body established to provide emergency response throughout Jamaica and its territorial waters. JFB's mission is *"To minimize loss of lives, injury to persons and damage to property from fires, natural disasters, accidents and other emergencies by the application of appropriate technology, fire prevention doctrines, rescue and fire fighting tactics and by acting in close collaboration with industries, businesses, institutions, households and community organizations in fulfilling the role of saving lives protecting property."*

I commissioned a performance audit of JFB to determine whether JFB is employing appropriate mechanisms to ensure it is capable of delivering effective and efficient island wide fire cover. The audit aims to assess the effectiveness and efficiency of JFB's fire prevention; fire fighting; rescue and emergency medical services. The audit also includes an assessment of JFB's fire regulation and enforcement mechanisms.

It is the duty of the Fire Brigade Commissioner, under Section 7(2) of the Fire Brigade Act, to see to it that all fire engines, fire boats and fire equipment are kept in good order and repair and are used for the purposes of JFB. However, we found that the issue of out of service emergency vehicles is affecting JFB's ability to carry out its fire fighting activities, emergency medical care and rescue services. In addition, we found that JFB is not managing well its fire prevention activities in order to minimize injuries, loss of lives and damage to properties.

I wish to express my sincere thanks to the Commissioner and staff of JFB for the cooperation and assistance given to the audit team. I take this opportunity to acknowledge the efforts of JFB in addressing the issues highlighted in the preliminary reports. I have made four recommendations, which JFB and its portfolio Ministry of Local Government and Community Development should seriously consider for implementation.

Pamela Monroe Ellis, FCCA, FCA, CISA
Auditor General

This page was intentionally left blank.

Executive Summary

The Jamaica Fire Brigade (JFB) is a statutory body established to provide emergency response throughout Jamaica and its territorial waters. JFB's mission is:

> *"To minimize loss of lives, injury to persons and damage to property from fires, natural disasters, accidents and other emergencies by the application of appropriate technology, fire prevention doctrines, rescue and fire fighting tactics and by acting in close collaboration with industries, businesses, institutions, households and community organizations in fulfilling the role of saving lives protecting property."*

We conducted a performance audit to determine whether JFB has in place an:

1. Effective system to provide adequate fire prevention; fire fighting, rescue and emergency medical services to the people of Jamaica, and
2. Effective fire regulation and enforcement mechanism to minimize injuries, loss of lives and damage to properties.

The key findings are outlined in paragraphs 1 to 6.

Key Findings

Fire Fighting and Response Capabilities

JFB's ability to provide adequate island wide fire and emergency cover is impaired by defective emergency vehicles.

1. **JFB is not assessing its timeliness in responding to fires.** We reviewed logs maintained by JFB at three fire stations[1] that showed the time emergency calls are received; vehicles dispatched and arrival at emergency scenes. However, there was no evidence that JFB used this information to analyse its response time. Without this evaluation, JFB would not be able to determine whether it is reaching fire and other emergency scenes within reasonable time. The evaluation would also assist JFB to monitor its response time and institute appropriate measures to improve performance. JFB indicated that *"to optimise response time the Brigade has in place a reverse response method[2], where traffic flow and the conditions of access routes are used to an accident, once practicable"*.

2. **Thirty-six per cent of JFB's fleet of emergency vehicles is out of service.** At May 2014, JFB's fleet of emergency vehicles including Pumpers, Water Tankers and Fireboats stood at 75, of which 31 (41 per cent) were out-of-service, some for periods up to six years. Consequently, JFB was unable to deploy a pumper to four fire stations. While there were other emergency vehicles at Portmore and Montego Bay fire stations, no vehicles were assigned to the Annotto Bay and Old Harbour fire stations. In addition, no

[1] Half-Way-Tree, Trench Town and York Park fire stations

[2] Emergency units are dispatched from fire stations taking into consideration the prevailing traffic flow

fire boat and only one of the six ambulances were operational to support emergency activities. These out of service vehicles, coupled with the fact that 37 per cent of the 13,207 fire hydrants were defective or without water, has impaired JFB's ability to effectively attend to emergency activities.

3. **JFB's pilot emergency medical service is negatively impacted by a shortage of ambulances.** JFB provides pre-hospital emergency medical care in six pilot locations with a fleet of six ambulances. However, at May 2014, only one of the six ambulances was operational; with the remaining five being out of service for periods up to 20 months. We also noted an increasing trend in ambulance downtime, moving from 11 per cent in 2007-08 to 62 per cent in 2013-14. As a result, JFB was only able to respond to approximately 52 per cent of medical emergencies between April 2011 and March 2014.

4. **JFB to dispose of defective Fireboat after spending $9.1 million for repair and storage.** JFB spent $6.3 million for storage fees and a further $2.8 million for repairs to a fireboat assigned to Kingston during the period January 2009 to April 2014. In February 2014, JFB requested and obtained approval from the Ministry of Finance and Planning (April 2014) to dispose of the fireboat. Consequently, at the date of our audit, JFB has no fireboat to support its fire fighting and rescue activities, as the only fireboat assigned to the Ocho Rios pier has been out-of-service since August 19, 2013 due to engine failure.

Fire Prevention, Regulation and Enforcement

JFB is not managing effectively its fire prevention activities.

5. **JFB is not faithfully conducting follow-up to ensure that owners of specified buildings adhere to fire safety standards.** Our review of 52 inspection files in April 2013 disclosed that 44 buildings (85 per cent) did not meet the required fire safety standard for certification. In addition, poor record keeping prevented JFB from producing the related inspection files for 25 buildings. Six fire stations and JFB's headquarters were also in breach of fire safety standards at March 2013. These deficiencies remain outstanding up to the date of this report. Subsequent to the audit (June 2014), JFB presented inspection reports for 15 of the 25 specified buildings detailing status of compliance with fire safety standards. However, there was still no evidence that JFB conducted follow-up on the failed inspections for 29 of the 44 buildings to verify whether the deficiencies identified were corrected.

6. **Eighty-seven per cent of JFB's emergency responses are for brush/debris fires and malicious false alarm calls.** Over the seven-year period, 2007-08 to 2013-14, JFB responded to 11,695 (11 per cent) malicious false alarm calls and 59,861 (76 per cent) brush and debris[3] fires. This represents 87 per cent of the 105,932 emergency calls received. We noted that JFB conducted public education activities to encourage citizens to desist from the illegal activities. This may have contributed to the 35 and 5 per cent decrease in malicious false alarm calls and brush/debris fires respectively, over the period 2007-08 to 2013-14. However, the rate is still a cause for concern, as JFB could channel

[3] refuse dump/rubbish fires

the resources, used to respond to these calls, to other operational areas for greater efficiency.

Recommendations

To improve the efficiency and effectiveness of the national fire service, JFB and the Ministry of Local Government and Community Development should consider adopting the following recommendations:

7. JFB should examine the response times for all emergencies over the next six months and implement corrective measures, if necessary, to ensure that they arrive at emergency scenes in the shortest possible time. Thereafter, internal performance standards should also be established for response time. In addition, actual response time should be periodically compared with the performance standards to monitor compliance, and address deviations.

8. We encourage JFB to continue its collaboration with the Jamaica Constabulary Force (JCF) to identify and prosecute perpetrators of illegal brush/debris fires and malicious false alarm calls. Further, JFB should intensify its public education activities to persuade members of the public to desist from these illegal activities.

9. JFB should immediately develop an information system that will allow management to readily monitor trends such as: working strength of its fleet; efficiency of repair function; fleet performance and effectiveness of its repair and maintenance functions. This will facilitate effective decision making on replacement needs and assessment of the efficiency of each emergency vehicle. This would facilitate timely repairs of emergency vehicles and enhance JFB's fire fighting and emergency medical service capacity.

10. JFB should immediately take appropriate actions to ensure that owners of specified buildings, including fire stations, are in strict adherence to JFB's fire safety standards. In addition, JFB should improve on its building inspection activities to ensure that all deficiencies identified are remedied within the specified period. Further, JFB should improve its record keeping to ensure that all building inspection files are available for review.

This page was intentionally left blank

Part One

Introduction

Establishment of the Jamaica Fire Brigade

1.1 The first Jamaican fire service came out of the need for an equipped fire service that would be responsive to the commercial and urban expansion in Kingston. As such, the Kingston and St. Andrew Fire Brigade was established in October 1871 under the Kingston and St. Andrew Fire Brigade Act. By 1961, fire stations were established in the other 12 parishes under the Parochial Fire Brigade Act. Subsequently, the Fire Brigade Act replaced the Kingston and St. Andrew and the Parochial Fire Brigade Acts in 1988 resulting in the formation of the national fire service called the Jamaica Fire Brigade (JFB). JFB falls under the ambit of the Ministry of Local Government and Community Development.

1.2 In addition to the Fire Brigade Act, the general administration of JFB is governed by the Financial Administration and Audit (FAA) Act, the Public Bodies Management and Accountability (PBMA) Act and other relevant laws and regulations, which govern Ministries, Departments and Agencies (MDAs).

Main Function

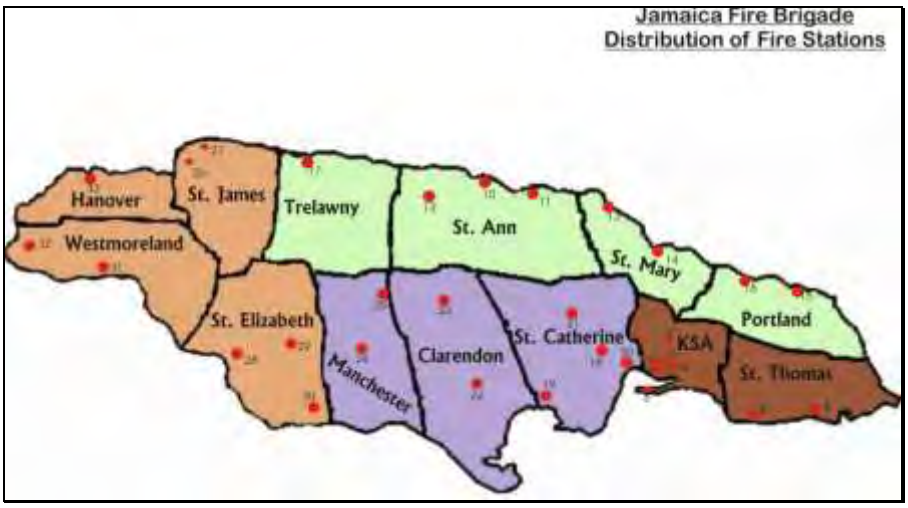
1.3 Section 5(1) of the Fire Brigade Act states, *"It shall be the duty of JFB to protect life and property in the case of fire or other disaster and, without prejudice to the generality of the foregoing, such duty shall include -*

1. *Extinguishing fires;*
2. *Protecting life and property endangered by fire or other disasters;*
3. *Obtaining information with regard to potential risks from fire or other disasters;*
4. *Inspecting buildings to ensure that reasonable steps are taken for the prevention of fire and for protection against the dangers of fire or other disasters;*
5. *Making arrangements to ensure that reasonable steps are taken to prevent or mitigate loss or injury arising from fire or other disasters; and carrying out other functions for the purpose of preventing or mitigating risks or danger to life and property as the Minister may, by order, require the Fire Brigade to undertake from time to time."*

Organisational Structure

1.4 The Commissioner is in charge of the operational command and the day-to-day running of JFB. JFB has two branches – an Operations Branch and an Administrative Branch, each headed by a Deputy Commissioner. At May 2014, JFB has 33 fire stations island wide **(Figure 1),** employs 1,658 fire fighters, and a fleet of 76 emergency vehicles and 33 utility vehicles. In April 1996, JFB in collaboration with the Ministry of Health and Environment, established a pilot emergency medical service to provide transportation and pre-hospital emergency medical care to injured persons.

Figure 1 Distribution of Fire Stations Island wide



Source: Jamaica Fire Brigade website

Funding

1.5 The Government of Jamaica (GoJ) provides funding to JFB from the Consolidated Fund. JFB requested from the GoJ amounts totalling $5.14 billion between 2007-08 and 2013-14, for capital expenditure to allow them to acquire fire fighting vehicles and equipment, rehabilitation of fire vehicles and repairs to fire stations and fire hydrants. However, JFB only received $629.7 million of the amount requested over the period **(Figure 2)**.

Figure 2 Analysis of JFB's Request for Capital 'A' Expenditure

Fiscal Year	Budget Request	Approved Budget	Subvention Received	Difference (Shortfall)/Excess	Shortfall as percentage of subvention received
	$	$	$	$	(%)
2013-14	253,234,178	223,915,000	184,684,870	68,549,308	27%
2012-13	1,545,009,004	136,000,000	88,355,699	1,456,653,305	94%
2011-12	1,264,970,964	235,812,000	88,935,538	1,176,035,426	93%
2010-11	407,882,576	86,574,000	65,193,504	342,689,072	84%
2009-10	335,341,819	136,000,000	16,939,920	318,401,899	95%
2008-09	732,521,654	215,000,000	86,469,284	646,052,370	88%
2007-08	606,002,593	258,177,000	99,132,551	506,870,042	84%
TOTAL	**5,144,962,788**	**1,291,478,000**	**629,711,366**	**4,515,251,422**	**81%**

Source: AuGD information provided by JFB and GOJ Estimates of Expenditure

Audit Scope and Methodology

1.6 We conducted a performance audit to determine whether JFB is managing its operations effectively and efficiently to achieve its core business objectives. Our audit was planned and conducted in accordance with the Government Auditing Standards, which are applicable to Performance Audit and issued by the International Organization of Supreme Audit Institutions (INTOSAI). The planning process involved gaining a thorough understanding of the operations of JFB and developing an issue analysis which focused on fire fighting, investigation and rescue operation; and fire prevention, regulations and enforcement. Our assessment is based on the review of internal and external documents, interviews with senior management and staff, site visits, observations and analysis of information provided by JFB.

This page was intentionally left blank

Part Two

Fire Fighting and Rescue Operations

Overview

The high number of out of service vehicles is affecting JFB's service delivery. JFB's emergency vehicles remained out-of service for periods up to six years. Only 59 per cent of JFB's fleet of emergency vehicles are operational at May 2014. This has impaired JFB's ability to attend to fire and other emergencies. For example, JFB was only able to respond to 52 per cent of medical emergencies between April 2011 and March 2013 due to out of service ambulances. The absence of such information does not facilitate the early detection of defects and repairs of emergency vehicles. The out of service vehicles, coupled with the fact that 37 per cent of the 13,207 fire hydrants were defective or without water, has also impaired JFB's ability to effectively attend to emergency activities. We noted that the rate of accidents involving JFB's emergency vehicles has been trending downward over the period January 2007 to April 2013.

JFB is not assessing its response time to emergencies

2.1 **JFB is not assessing its timeliness in responding to fires and other emergencies.** We found that JFB did not assess the time it takes to arrive at fire scenes and other emergencies. We reviewed logs maintained by JFB at three fire stations[4] that showed the time emergency calls were received; vehicles dispatched and arrival at emergency scenes. However, there was no evidence that JFB used this information to assess its response time. Without this assessment, JFB would not be able to determine whether it is reaching fire and other emergency scenes within a reasonable time. In 2008, external consultants recommended that JFB measure response times and establish benchmarks for urban and rural locations.

2.2 JFB indicated that due to a number of factors, including inadequate emergency vehicles and fire stations, they *'decided not to include in its service standards set response times'*. In addition, JFB stated that *'to optimise response time the Brigade has in place a reverse response method, where traffic flow and the conditions of access routes are used to an accident, once practicable'*.

Emergency vehicles remained out of service for periods up to six years

2.3 **Only 59 per cent of JFB's fleet of emergency vehicles are operational.** At May 2014, JFB's fleet of emergency vehicles including Pumpers, Water Tankers and Fireboats stood at 75, of which 31 (41 per cent) were out-of-service, some for periods up to six years **(Figure 3)**. The 31 vehicles were non-operational due to mechanical defects to engines, transmissions and front-ends. JFB indicated that some of the emergency vehicles were unserviceable and will be recommended to be board of surveyed. Consequently, at May 2014, JFB was unable to deploy a pumper to four fire stations, namely Annotto Bay, Portmore, Old Harbour and Montego Bay. While there were other emergency vehicles at Portmore and Montego Bay fire stations, no emergency vehicles were assigned to Annotto Bay and Old Harbour fire stations. The impact of the defective pumpers is further compounded as JFB has indicated that "*based on the level of risk and location of the 33 fire stations in proximity to each other, 18 fire stations should be equipped with at least two (2) Pumpers."* However, each of the 18 designated fire stations were assigned only one pumper.

2.4 We noted that 13 of the 31 defective emergency vehicles aged between 11 and 29 years. Fifteen were aged between one to 10 years, while no dates were available for the remaining three emergency vehicles. JFB estimated that it would cost approximately $48.25 million to repair 23 of the 31 vehicles.

[4] Half-Way-Tree, Trench Town and York Park fire stations

Figure 3 JFB Island wide Vehicle Distribution and Status Report as at May 19, 2014

Type of Vehicles	Purpose of Use	Total	In-service	Out of Service
Pumper	First responders	35	27	8
Foam Tender	For flammable liquid fires	4	3	1
Emergency Tender	For accidents and rescue	5	3	2
Water Tanker	For additional water supply	**8**	**4**	**4**
Hydraulic Platform	For rescue and multi-storey building fires	**6**	**2**	**4**
Turntable Ladder	For rescue and high rise building fires	**6**	**4**	2
Ambulance	Provide pre-hospital medical services	9	1	8
Fire Boat	For support to fires and other emergency	2	0	2
Total		**75**	**44**	**31**
Percentage		**100%**	**59%**	**41%**

NOTE:

1. The total includes *two ambulances to be written off by the Ministry of Finance*

Source: *AuGD analysis of information provided by the Jamaica Fire Brigade*

2.5 Information obtained from JFB indicated that some of the current fleet of emergency vehicles were unsuitable to negotiate hilly and rough terrains. Consequently, this resulted in damage to the vehicle's undercarriage and air compressors for the braking system.

JFB's pilot Emergency Medical Service (EMS) operating with only one ambulance

2.6 In April 1996, JFB entered into a Memorandum of Understanding with the Ministry of Health and Environment for the implementation of an emergency medical service on a phased basis. JFB's EMS provides pre-hospital emergency medical care and transport injured persons to medical institutions. The EMS has a fleet of six ambulances and is staffed by 71 Emergency Medical Technicians (EMTs) who are trained fire-fighters. Under the first phase, pilot projects were implemented at six fire stations – Falmouth, Linstead, Ironshore, Lucea, Negril and Savanna-La-Mar.

2.7 At May 2014, only one ambulance was operational; the other five were out-of-service. As a result, five of the six pilot locations were without a functioning ambulance for periods up to 20 months **(Figure 4)**. We noted a provision of $3.4 million in the 2014-15 Estimates of Expenditure to repair two ambulances and $5.6 million to acquire an additional ambulance.

Figure 4 Status of JFB's Emergency Medical Service Ambulances as at May 2014

Ambulance Site	Unit/Fleet No.	Status of Ambulance
Savanna-la-mar	1630	In Service
Negril	12-10	Out of service since 1st May 2014
Lucea	1531	Out of service since 1st June 2013
Ironshore	1628	Out-of service since 27th May 2013
Falmouth	1634	Out of service since 14th October 2012
Linstead	1562	Out-of service since 23rd November 2012
Total		

NOTE:
1. Estimated repair cost not provided (N/P) for three ambulances

Source: Information provided by JFB

JFB only responded to 50 per cent of emergency calls due to out of service ambulances

2.8 JFB's record showed that for financial years 2011-12 to 2013-14 the EMS received 8,366 emergency calls but was only able to respond to 4,375 (52 per cent), due mainly to out of service ambulances **(Figure 5)**. Similar information was not presented for the periods prior to 2011-12, despite requested **(Appendix 1)**. We found that defective ambulances at the pilot locations have been out-of-service for an average of 157 days in 2007-08, moving to 205 days in 2012-13. The absence of functioning ambulances has impaired the Brigade's ability to respond to medical emergencies. **Appendix 2** shows the increasing trend in percentage downtime of EMS ambulances, moving from 11 per cent in 2007-08 to 62 per cent in 2013-14.

Figure 5 Number of emergency medical calls EMTs responded to in 2011-12 and 2013-14

	Details	Calls Received	No. of Calls Responded to	Percentage Responded to
2013-14	Motor Vehicle Accidents	566	NP[5]	NP
	Other Traumas	623	NP	NP
	Medical	1663	NP	NP
	Obstetrics & Gynaecology	53	NP	NP
	Total	**2,905**	**1,397**	**48.09%**
2012-13	Motor Vehicle Accidents	503	225	44.73%
	Other Traumas	601	249	41.43%
	Medical	1518	944	62.19%
	Obstetrics & Gynaecology	62	54	87.10%
	Total	**2,684**	**1,472**	**54.84%**
2011-12	Motor Vehicle Accidents	492	238	48.37%
	Other Traumas	710	231	32.54%
	Medical	1514	993	65.59%
	Obstetrics & Gynaecology	61	44	72.13%
	Total	**2,777**	**1,506**	**54.23%**
	Grand Total	**8,366**	**4,375**	**52.39%**

Source: AuGD analysis of information provided by Jamaica Fire Brigade

[5] breakdown in 'number of calls responded per incident' for 2013-14 not provided

JFB has no fireboat to support fire fighting activities

2.9 We found that JFB's ability to provide support to fire fighting and rescue emergencies is impaired by the shortage of fireboats. JFB indicated that it would require a fireboat at each of the main ports; Kingston, Ocho Rios, Falmouth and Montego Bay, to adequately provide support to fire fighting and rescue emergencies. However, at the date of our audit, JFB only had a fleet of one fireboat. The fireboat assigned to the Ocho Rios pier has been out-of-service since August 19, 2013 due to engine failure. The other boat, which was at dry dock since June 2007 was written off (board of survey) by the Ministry of Finance and Planning in April 2014.

JFB spent $9.1 million for repair and storage on non-operable Fireboat

2.10 JFB spent a total of $9.1 million for repairs and storage fees on a non-operable fireboat assigned to Kingston. An amount of $2.8 million was spent to effect repairs to the fireboat during the period January 2009 to January 2013 and a further $6.3 million for storage fees. JFB had planned to undertake the repairs in three phases with the first two phases estimated to cost $11.6 million. There was no costing for the third phase. However, in May 2012, a JFB's Task Force concluded that it would cost an additional US$500,000 to repair the vessel. In February 2014, JFB requested and obtained approval from the Ministry of Finance and Planning to dispose of the fireboat. A photo of the defective fireboat is shown in **Figure 6**.

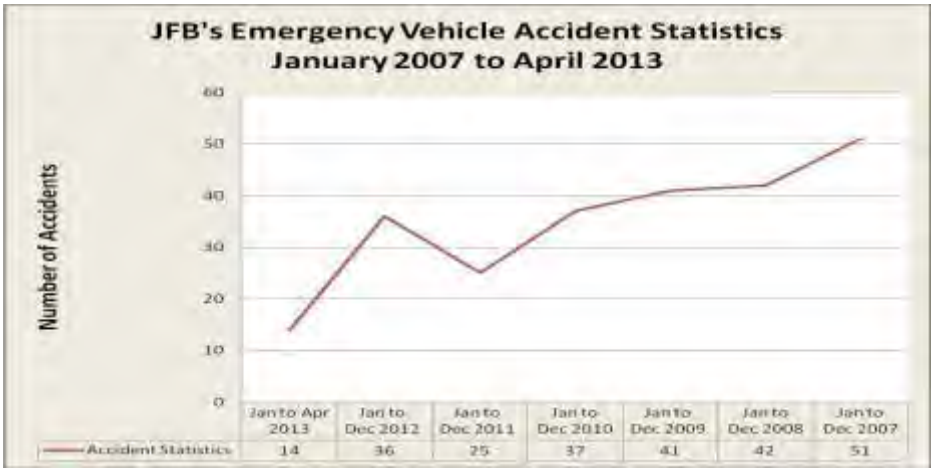
Figure 6 Defective ERIF II Fireboat in storage at dry dock

Source: AuGD Photo

JFB's emergency vehicle accident rate trending downward since 2007

2.11 JFB statistics showed that the rate of accidents involving its emergency vehicles continues on a downward trend, moving from 51 accidents in 2007 to 36 in 2012. Up to April 2013, JFB recorded 14 accidents involving emergency vehicles **(Figure 7)**.

Figure 7 Accident statistics January 2007 to April 2013



Source: AuGD Compilation and Analysis of JFB's accident statistics

2.12 Our review of JFB's accident statistics shows that over the period January 2007 to April 2013, 59 of JFB's emergency vehicles were involved in motor vehicle accidents for a total of 246 times **(Appendix 3)**. Forty-two were involved in multiple accidents; while the other 17 met in one accident over the period **(Figure 8)**. JFB provided an estimate of $12.2 million to repair three of the 59 vehicles.

Figure 8 Analysis of JFB's emergency vehicle accident statistics

Number of accident (range)	No. of Vehicles	Photo of a damaged Pumper
16 to 19	2	
10 to 13	6	
7 to 9	7	
4 to 6	3	
2 to 3	24	
1	17	
Total	**59**	Fleet No. 5-89 - 2006 International Truck (Pumper)

Note:

Damaged International Truck (Pumper)

Fleet No. 5-89 - 2006 International Truck (Pumper) damaged in an accident while en-route to an emergency scene on January 10, 2007. JFB informed us that this unit, which we observed parked at the Waterford Fire Station on our site visit, is beyond repair.

Source: AuGD analysis of JFB's accident data

2.13 JFB explained that a number of factors resulted in its emergency vehicles, en route to emergency scenes, being involved in accidents. These include the failure of motorists to observe their siren, mechanical failures and in some cases negligence of JFB's drivers. Further, JFB could not provide evidence that it complied with the requirement under Section 6.44 of the Financial Administration and Audit (FAA) Instructions, which mandates Accounting Officers to report losses due to accidents to the Financial Secretary and the Auditor General.

Thirty-seven per cent of fire hydrants non-functional

2.14 JFB in collaboration with the National Water Commission (NWC) conducted an island-wide survey of its network of fire hydrants over the period October 2011 to July 2012. The aim of the survey was to obtain an accurate count of the number of hydrants and their locations; determine the present status of each hydrant; develop and implement a GIS[6] database of all hydrants and develop an appropriate web mapping application to access and analyze data. JFB completed the latest mapping survey, in July 2012, at a cost of $1.5 million.

2.15 As shown in **Figure 9**, the results of the hydrant mapping survey revealed that 8,288 (63 per cent) of the 13,207 fire hydrants were in working condition; while 2,958 (22 per cent) were not in working condition. The status of the remaining 1,961 (15 per cent) was recorded as unknown, due to the absence of running water at the time of the survey to determine whether the hydrants were functional. The report noted that lack of maintenance contributed to the increasing number of non-functional fire hydrants. JFB estimated that it would cost $67 million to repair the out-of-service fire hydrants. **Appendix 4** details the nature of defects and repairs needed on fire hydrants in JFB's 13 divisions. At June 2014, JFB reported a one per cent increase in the number of working fire hydrants, moving from 8,288 in January 2013 to 8,425.

Figure 9 Status of Fire Hydrants by Parish at January 2013

		Hydrants Status			At December 2012	
Divisions	**Total**	**Working**	**Not Working**	**Unknown[7]**	**Repaired**	**Serviced**
Kingston & St. Andrew	4471	2,934	777	760	17	406
St Thomas	457	110	51	296	1	0
St. Ann	518	267	140	111	3	10
St. Mary	346	149	152	45	11	6
Portland	286	159	82	45	0	0
Trelawny	384	219	118	47	2	16
St. Catherine	2460	1689	402	369	4	40
Clarendon	568	355	179	34	0	0
Manchester	628	347	230	51	5	0
St. James	1736	1328	398	10	0	245
St. Elizabeth	368	213	117	38	5	0
Westmoreland	605	305	170	130	0	27
Hanover	380	213	142	25	0	0
Total	**13,207**	**8,288**	**2,958**	**1,961**	**48**	**750**
% Allocation	**100%**	**63%**	**22%**	**15%**		

Source: AuGD analysis of information provided by JFB

2.16 Over the last six years, 2008-09 to 2013-14, JFB requested an aggregate amount of $108.5 million for the rehabilitation of fire hydrants; of that amount, only $28.3 million was approved. This represents a reduction in JFB's budget request of $80.2 million. JFB repaired 184 of the defective hydrants, and serviced 1,994 within the four-year period 2009 to 2012 **(Appendix 5)**. This represents an average of 46 hydrants repaired and 498 hydrants serviced each year.

[6] Geographic Information System

[7] Due to absence of running water at the time of the survey, JFB was unable to determine whether the hydrants were functional

This page was intentionally left blank

Part Three

Fire Prevention, Regulation and Enforcement

Overview

JFB's Fire Prevention Division inspects specified buildings to ensure that these buildings meet fire safety regulations. However, we found that JFB does not have a formal policy to support its island-wide building inspection activities. In addition, JFB is not faithfully conducting the required follow-up inspections of buildings, which do not meet fire safety standards. Our review of 52 inspection files disclosed that 44 specified buildings did not meet the required fire safety standard for certification. There was no evidence to indicate that JFB conducted any follow-up for 29 of the 44 specified buildings to ensure that steps are being taken to correct the deficiencies identified. We also observed that six fire stations and the Brigade's headquarter did not meet fire safety standards. We also observed that 87 per cent of JFB's emergency responses were due to brush and debris fires and malicious false alarm calls.

JFB does not have a formal building inspection policy

3.1 An essential component that supports JFB's fire fighting and rescue activities is fire prevention. The functions of the Fire Prevention Division include; reviewing building plans to ensure that buildings are constructed or renovated in keeping with JFB's fire safety standards. The Division also conducts building inspections; issues fire permits and certifications; undertakes fire investigations; and provides technical assistance for the placement of hydrants in subdivisions. JFB indicated that they used local and international building standards in conducting building inspections.

3.2 We found that JFB does not have a comprehensive policy to guide building inspection activities. JFB presented an undated and unapproved one-page document, which outlined basic information about the objectives of its inspection activity. The document outlined that the principal objectives of the fire department inspections includes: to obtain proper life safety condition; keep fires from starting and spreading; and to check the adequacy and maintenance of in-house fire protection appliances and system.

3.3 However, the document did not include details such as:

i. the minimum standards for fire safety requirement for specified buildings;
ii. the categorization of specific buildings in order of priority based on risk to life and safety, occupancy type, number of occupants and frequency of use;
iii. the frequency or cycle of building inspection based on their categorisation;
iv. the minimum number of building inspections to be undertaken in a given period and
v. procedures for enforcing fire regulations.

In June 2014, JFB presented a draft 'Proposal for For-Credit Internship Programme' to utilise university students, to assist JFB with developing formal policies, including the fire safety policy.

JFB is not faithfully conducting follow-up inspection of specified buildings

3.4 JFB is empowered by Section 22 of the Fire Brigade Act to inspect '*specified buildings'* to ensure that reasonable steps are taken for the prevention of fire and for protection against the dangers of fire or other disasters. Section 2 defines specified buildings as, "*any public building*[8]*, office building, factory, warehouse, any building in which workers are employed, any building in which hazardous substance or material is stored, manufactured or processed, any building of more than one floor level constructed or intended for occupation by more than one family, and any place of entertainment or building to which the public has access whether on payment of a fee or otherwise."*

3.5 JFB developed a *'Fire Prevention Certification Notification Database'* to track critical information for building inspection activities. The information should inform JFB as to the dates for routine inspections and recertification of specified buildings. However, the records were last updated in March 2012.

[8] Schools, Hospitals, Health Centre, Libraries Courts etc;

3.6 In April 2013, we requested 77 inspection files for specified buildings; however, JFB only provided 52 of these files (**Figure 10**). As a result, we were unable to determine whether the remaining 25 specified buildings met JFB's fire safety standards. In June 2014, JFB presented related inspection reports for 15 of the outstanding 25 specified buildings detailing status of compliance with fire safety standards.

3.7 Our review of the 52 inspection files disclosed that 44 specified buildings did not meet the required fire safety standard for certification. JFB identified deficiencies such as the need for automatic smoke detectors, fire extinguishers and an audible single stage manual/electric fire alarm system. There was no evidence that JFB conducted any follow-up for 29 of the 44 specified buildings to ensure that steps are being taken to correct the deficiencies identified. These include four health centres, three basic schools, five primary and high schools and two tertiary institutions inspected between November 2003 and December 2012 **(Figure 10)**.

Figure 10 Analysis of JFB's building inspection files

	No. of files			No. of buildings	
Details	**Requested**	**Presented**	**Not presented**	**Certified**	**not Certified**
Basic Schools (ECI)	8	3	5	0	3
Hospitals	8	6	2	0	6
High Rise Buildings	4	4	0	0	4
Primary & High Schools	8	5	3	0	5
Apartments	5	4	1	0	4
Nursing/children's Homes/Places of Safety	10	5	5	2	3
Industrial and Commercial Buildings	6	3	3	0	3
Clinics and Health Centres	4	4	0	0	4
Court Houses	3	2	1	0	2
Hotels	2	2	0	2	0
Tertiary Institutions	2	2	0	0	2
Places of Amusement	13	11	2	4	7
Offices	4	1	3	0	1
Total	**77**	**52**	**25**	**8**	**44**

Source: AuGD analysis of data contained in JFB's building inspection files (2013)

JFB fire stations and headquarters in breach of fire safety standards

3.8 Internal inspections conducted by the Fire Prevention Division at six fire stations and JFB's headquarters, during March 2013, found that these buildings did not meet JFB's fire safety standards. The deficiencies include loose and exposed electrical wires, missing electrical panels, and the need for fire extinguishers, fire alarms and automatic smoke detectors **(Figure 11)**. These deficiencies remain outstanding up to the date of this report.

Figure 11 Fire safety deficiencies found at fire stations

Fire Station	Date of inspection	Deficiencies
Stony Hill Fire Station	March 27, 2013	There were loose and exposed electrical wires, missing electrical panels, and the need for fire extinguishers in the barracks and kitchen.
Fireboat sub station	March 28, 2013	The need for alternative means of escape (Emergency Exit) from first floor; the need for three dry chemical fire extinguishers in the kitchen, barrack and duty room; automatic smoke detectors/heat detectors; LPG 100lbs cylinder in kitchen to be removed and placed outside; electrical system needs to be rectified by a certified electrician.
York Park	March 11, 2013	The need for automatic smoke detector in the female officers' and sub officer's quarters and the male barrack; the need for fire alarm system in the staff lounge, sub officer, male barrack and general stores; exposed electrical wiring, plugs and sockets, the need for fire extinguishers in fleet management office lounge area, sub officer quarter, male barrack and kitchen. No emergency evacuation plans or signs in place.
Port Royal	March 13, 2013	The need for alternative means of escape (emergency exit) into the eastern wall of the first floor; the need for three fire extinguishers in the duty room, barrack room and kitchen; need for audible fire alarm system throughout the entire premises; provide and install exit signs above all exit doors and directional arrows indicating emergency exit routes.
Trench Town	March, 2013	Loose electrical wires, missing electrical outlets and electrical outlets show signs of burning, no first aid fire fighting equipment seen on stair landing. No isolation valves on LPG line and LPG tank not secured by approved stands or bracket. No fire extinguisher.
Half-Way-Tree	March 27 , 2013	Missing electrical switch cover, loosely hanging electrical wires and switch, no fire extinguisher, 100lbs cylinders stored in close proximity to stove.
Brigade Headquarters	March , 2013	No emergency lights, fire extinguishers and automatic smoke detectors seen.

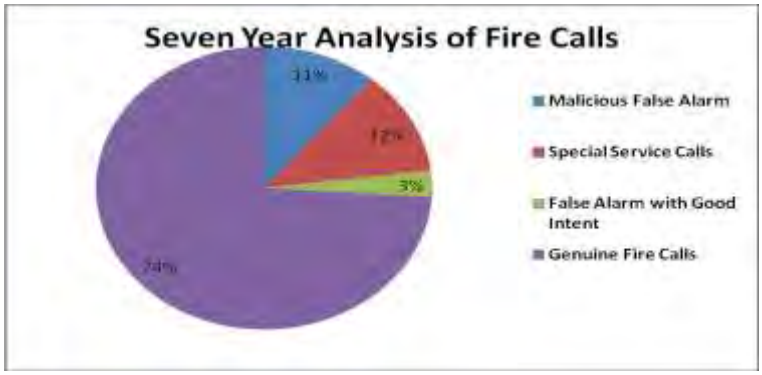
Source: JFB's building inspection reports

Malicious false alarm calls amounted to over 11,000 in seven years

3.9 Section 17(h) of the Fire Brigade Act states, *"Every person who-gives or causes to be given in any manner whatsoever to JFB any false alarm of a fire or other disaster without having good reason to believe in the existence of such fire or other disaster (the proof whereof shall be on such person), shall be guilty of an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding one thousand dollars or to imprisonment with hard labour for a term not exceeding three months."*

3.10 Information provided by JFB shows that for the last seven years, 2007-08 to 2013-14, JFB responded to 105,932 emergency calls. Of this amount, 78,734 (74 per cent) are genuine fire calls; 12,304 (12 per cent) are for special services; 11,695 (11 per cent) represent malicious false alarm calls; while, the other 3,199 (three per cent) are classified as false alarm with good intent. The analysis, as shown in **Figure 12,** revealed that over the seven-year period, JFB responded to an average 11 per cent, or 1,671 malicious false alarm calls each year.

Figure 12 Analysis of Fire Calls 2007-08 to 2013-14



Source: AuGD analysis of statistics provided by the Jamaica Fire Brigade

Seventy-six (76) per cent of JFB's emergency response to genuine fires relates to brush and debris fires

3.11 We observed that JFB utilised a significant amount of its resources to fight brush and debris fires. Over the seven-year period, 2007-08 to 2013-14, JFB responded to 78,734 genuine fire calls (**Appendix 6**); 76 per cent (59,861) related to brush and debris (refuse dump/rubbish) fires **(Figure 13)**. Brush fires account for 63 per cent (49,500); while, debris fires account for 13 per cent (10,361). Sections 3, 4(a)(b) and 5 of the Country Fires Act make it an offence for anyone to set fire to trash and crops, except under certain conditions. Section 15(1) of the Act prescribes a fine not exceeding $2,000 or imprisonment up to three months for setting illegal fires.

Figure 13 Brush and refuse fire statistics 2007-08 to 2013-14

Fiscal Year	Brush Fire			Refuse Dump/Rubbish		
	Incidents	Change	Change (%)	Incidents	Change	Change (%)
2013-14	5,937	2,256	27.5	1,500	-41	-2.7
2012-13	8,193	856	11.7	1,541	113	7.9
2011-12	7,337	1,684	29.8	1,428	162	12.8
2010-11	5,653	-2,815	-33.2	1,266	-375	-22.9
2009-10	8,468	349	4.3	1,641	-60	-3.5
2008-09	8,119	2326	40.2	1,701	417	32.5
2007-08	5,793			1,284		
TOTAL	**49,500**			**10,361**		

Source: AuGD analysis of fire statistics provided by JFB

3.12 We noted that JFB conducted public education activities to encourage citizens to desist from these illegal activities. This may have contributed to the 35 and 5 per cent decrease in malicious false alarm calls and brush/debris fires respectively, over the period 2007-08 to 2013-14. The rate is still a cause for concern, as JFB could channel the resources, used to respond to these calls, to other operational areas for greater efficiency. JFB did not assess the financial and operational impact of the 11,695 malicious false alarm calls.

This page was intentionally left blank

Appendices

Appendix 1 EMS Responses Data

SRL	INCIDENTS	2012-13	2011-12	2010-11	2009-10	2008-09	2007-08	TOTAL
Motor Vehicle Accidents								
	(MVA) rec'd	503	492	350	457	584	430	**2,816**
	# Responded	225	238	Not Provided	Not Provided	Not Provided	Not Provided	**463**
	% Responded	44.73%	48.37%	Not Provided	Not Provided	Not Provided	Not Provided	
	Patients involved	431	550	Not Provided	Not Provided	Not Provided	Not Provided	**981**
	Dead on Arrival (DOA)	6	14	Not Provided	Not Provided	Not Provided	Not Provided	**20**
Other Traumas								
	Other Traumas rec'd	601	710	607	762	912	718	**4,310**
	# Responded	249	231	Not Provided	Not Provided	Not Provided	Not Provided	**480**
	% Responded	41.43%	32.54%	Not Provided	Not Provided	Not Provided	Not Provided	
	Patients involved	539	630	Not Provided	Not Provided	Not Provided	Not Provided	**1,169**
	Dead on Arrival (DOA)	6	7	Not Provided	Not Provided	Not Provided	Not Provided	**13**
Medicals								
	Medical rec'd	1518	1,514	1,527	1,701	2,225	1,718	**10,203**
	# Responded	944	993	Not Provided	Not Provided	Not Provided	Not Provided	**1,937**
	% Responded	62.19%	65.59%	Not Provided	Not Provided	Not Provided	Not Provided	
	Patients involved	981	1130	Not Provided	Not Provided	Not Provided	Not Provided	**2,111**
	Dead on Arrival (DOA)	29	30	Not Provided	Not Provided	Not Provided	Not Provided	**59**
Obstetrics Gynecological								
	(OB/GYN) rec'd	62	61	66	75	105	91	**460**
	# Responded	54	44	Not Provided	Not Provided	Not Provided	Not Provided	**98**
	% Responded	87.10%	72.13%	Not Provided	Not Provided	Not Provided	Not Provided	
	Patients involved	56	56	Not Provided	Not Provided	Not Provided	Not Provided	**112**
	Dead on Arrival (DOA)	0	2					**2**
								17,789

Source: JFB's Emergency Medical Statistics

Appendix 2 Ambulance downtime – 2007-08 to 2013-14

EMS Pilot Sites	2013 – 2014		2012 – 2013		2011 – 2012		2010 – 2011		2009 – 2010		2008 - 2009		2007 – 2008	
	Days	**%**	**Days**	**%**	**Days**	**% DT**	**Days**	**% DT**	**Days**	**%DT**	**Days**	**%DT**	**Days**	**%DT**
Ironshore	161	44%	116	32%	203	56%	265	73%	75	21%	-	-	-	-
Savanna-la-mar	162	44%	316	87%	365	100%	127	35%	127	35%	111	30%	-	-
Negril	53	15%	140	38%	213	58%	17	5%	80	22%	188	52%	33	9%
Lucea	250	68%	214	59%	87	24%	52	14%	182	50%	132	36%	30	8%
Linstead	365	100%	268	73%	75	21%	264	72%	119	33%	33	9%	92	25%
Falmouth	365	100%	178	49%	51	14%	60	16%	6	2%	18	5%	2	1%
Average	**226**	**62%**	**205**	**56%**	**166**	**45%**	**131**	**36%**	**98**	**27%**	**96**	**26%**	**157**	**11%**

Appendix 3 Emergency Vehicles Accident Statistics - January 2007 to April 2013

No.	Fleet No.	Licence No.	Particulars	As at April 2013	2012	2011	2010	2009	2008	2007	Total
1	5-92	30-3344	2006 International Truck Pumper	1	5	1	2	3	1	6	**19**
2	5-72	30-3307	2006 International Truck Pumper 7400-SBA	1	2	2	0	3	2	6	**16**
3	5-96	30-3353	2006 International Truck Pumper	0	2	4	3	3	0	1	**13**
4	6-4	30-3322	2006 International Foam Tender	1	2	2	0	2	2	2	**11**
5	5-95	30-3351	2006 International Truck Pumper	0	1	0	0	1	3	5	**10**
6	5-88	30-3347	2006 International Truck Pumper	1	2	0	4	0	2	1	**10**
7	5-90	30-3346	2006 International Truck Pumper	0	0	0	3	3	1	3	**10**
8	7-4	30-3632	2008 International Emergency Tender	0	3	3	2	2	0	0	**10**
9	8-4	30-3311	2006 International Water Tanker	0	1	1	4	0	3	0	**9**
10	5-93	30-3352	2006 International Truck Pumper	2	3	1	0	1	0	1	**8**
11	5-73	30-3306	International Truck (Pumper)7400-SBA	1	2	0	0	0	1	4	**8**
12	5-76	30-3312	2006 International Truck Pumper	1	0	0	1	2	2	1	**7**
13	5-97	30-3431	1989Superior Truck Pumper Volvo	0	1	1	0	1	4	0	**7**
14	9-4	30-3895	2008 Spartan Hydraulic Platform GA40M3164	0	0	1	1	5	0	0	**7**
15	10-4	30-3890	2008 GA40M2142 Turntable Ladder	2	1	2	2	0	0	0	**7**
16	5-75	30-3319	2006 International Truck Pumper	2	1	0	1	0	0	2	**6**
17	5-78	30-3317	2006 International Truck Pumper	0	1	0	3	1	0	0	**5**
18	5-82	30-3348	2006 International Truck Pumper	1	0	0	0	1	1	1	**4**
19	5-86	30-3340	2006 International Truck Pumper	0	0	2	0	0	1	0	**3**
20	5-81	30-3313	2006 International Truck Pumper	0	0	0	0	0	1	2	**3**
21	5-77	30-3315	2006 International Truck Pumper 7400-SBA	0	1	0	0	0	1	1	**3**
22	5-74	30-3318	2006 International Truck Pumper 7400-SBA	0	0	0	1	1	1	0	**3**
23	6-6	30-3308	2006 International Foam Tender	0	0	1	0	1	1	0	**3**
24	6-7	30-3316	2006 International Foam Tender	0	0	0	0	1	1	1	**3**
25	5-79	30-3304	2006 International Truck Pumper	0	0	0	0	0	2	1	**3**
26	8-5	30-3320	2006 International Water Tanker7400-SBA	0	1	0	1	0	0	1	**3**
27	8-6	30-3309	2006 International Water Tanker	0	0	1	0	2	0	0	**3**
28	8-7	30-3310	2006 International Water Tanker	0	0	0	2	0	1	0	**3**
29	12-3W	30-2904	2001 Ford #1530	0	0	0	1	1	0	1	**3**
30	1628	30-3419	2007 Mercedes Benz Ambulance	0	0	0	0	1	0	2	**3**
31	1630	30-3420	2007 Mercedes Benz Ambulance	0	1	0	0	2	0	0	**3**
32	9-1K	N/A	1987 Steyr #71 Snorkel	0	0	0	0	1	0	2	**3**
33	5-83	30-3343	2006 International Truck Pumper	0	1	0	0	0	0	1	**2**
34	5-94	30-3345	2006 International Truck Pumper	1	0	0	0	0	1	0	**2**
35	5-49	30-2233	2000 Freightliner FL70	0	1	1	0	0	0	0	**2**
36	5-98	30-3867	2008Renault Truck Pumper	0	0	0	1	1	0	0	**2**
37	6-5	30-3321	2006 International Foam Tender	0	0	1	0	0	1	0	**2**
38	9-6	30-3894	2008 Spartan Hydraulic Platform GA40M3164	0	0	1	1	0	0	0	**2**
39	10-6	30-3892	2008 GA41M2142 Turntable Ladder	0	0	0	2	0	0	0	**2**
40	5-24	30-1705	1991 Camiva #59Truck Pumper	0	1	0	0	0	1	0	**2**
41	10-2K	N/A	1987 Steyr #75 Turntable Ladder	0	0	0	0	0	0	2	**2**
42	12-2H	30-2877	2001 Ford #1531	0	0	0	0	0	2	0	**2**

No.	Fleet No.	Licence No.	Particulars	As at April 2013	2012	2011	2010	2009	2008	2007	Total
43	5-84	30-3341	2006 International Truck Pumper	0	0	0	0	0	1	0	**1**
44	5-87	303342	2006 International Truck Pumper	0	0	0	0	0	0	1	**1**
45	5-60	30-3169	1986 Isuzu Truck Pumper	0	0	0	0	0	1	0	**1**
46	5-58	30-2973	1987 Nissan Truck Pumper	0	0	0	0	0	0	1	**1**
47	5-91	30-3350	2006 International Truck Pumper	0	0	0	0	0	1	0	**1**
48	5-27	30-1698	1991 Camiva JE13 Renault #62 Truck Pumper	0	1	0	0	0	0	0	**1**
49	7-7	30-3578	2008 International Emergency Tender	0	0	0	0	0	1	0	**1**
50	7-8	30-3580	2008 International Emergency Tender	0	0	0	1	0	0	0	**1**
51	9-3	30-3896	2008 Spartan-Hydraulic Platform GA40M3164	0	0	0	1	0	0	0	**1**
52	9-5	30-3891	2008 Spartan Hydraulic Platform GA40M3164	0	0	0	0	1	0	0	**1**
53	10-5	30-3889	2008 GA41M2142 Turntable Ladder	0	1	0	0	0	0	0	**1**
54	12-8	30-3788	1998 Ford Ambulance	0	0	0	0	1	0	0	**1**
55	5-4D	30-2209	1994Truck Pumper TLF 3000 Steyr #25	0	0	0	0	0	1	0	**1**
56	5-7ST	30-2211	1994Truck Pumper TLF 3000 Steyr #29	0	1	0	0	0	0	0	**1**
57	5-10	30-2217	1994 Steyr Truck Pumper #32	0	0	0	0	0	0	1	**1**
58	#58	30-1706	1991 Camiva Truck Pumper	0	0	0	0	0	1	0	**1**
59	5-89	30-3349	2006 International Truck Pumper	0	0	0	0	0	0	1	**1**
Total				**14**	**36**	**25**	**37**	**41**	**42**	**51**	**246**

Source: AuGD compilation of accident data provided by JFB

Appendix 4 Defective Fire Hydrants Island-wide

Divisions	Needs Painting	Hydrant Barrel Missing	Hydrant Barrel Damaged	Flange Missing/ Damage	Need Gland Packing	Threading Needs Greasing	Blank Cap Missing	Structure/ Objecting Hydrant	Spindle	Valv Box Cover
Kingston & St. Andrew	2270	54	272	153	13	3	896	76	83	1739
St Thomas	295	5	5	17	0	0	246	31	2	300
St. Ann	80	68	46	11	0	3	83	14	4	94
St. Mary	225	5	23	9	4	0	45	9	2	71
Portland	111	14	10	7	0	0	83	8	12	88
Trelawny	149	6	4	3	0	7	99	7	49	111
St. Catherine	1611	8	39	73	5	0	446	57	4	603
Clarendon	358	8	30	15	0	2	32	12	1	147
Manchester	414	2	40	2	6	0	57	2	3	140
St. James	284	4	33	7	4	22	187	77	65	0
St. Elizabeth	213	6	21	1	6	0	59	18	1	118
Westmoreland	348	4	8	2	0	1	65	3	0	167
Hanover	0	0	0	0	0	1	10	0	0	0
Total	**6358**	**184**	**531**	**300**	**38**	**39**	**2308**	**314**	**226**	**3578**

Source: Information provided by JFB

Appendix 5 Analysis of JFB's service and repair of hydrants

Divisions	2012		2011		2010		2009		Total	
	Repaired	Serviced	Repaired	Serviced	Repaired	Serviced	Repaired	Serviced	Repaired	Serviced
KSAC	17	406	29	238	11	340	1	215	58	1199
St Thomas	1	0	1	50	4	1	0	0	6	51
St. Ann	3	10	1	0	2	0	0	0	6	10
St. Mary	11	6	8	54	3	12	2	5	24	77
Portland	0	0	3	7	5	0	0	0	8	7
Trelawny	2	16	2	0	6	0	0	12	10	28
St. Catherine	4	40	6	19	2	34	0	28	12	121
Clarendon	0	0	0	0	1	0	1	0	2	0
Manchester	5	0	0	0	2	5	0	0	7	5
St. James	0	245	0	82	17	79	5	21	22	427
St. Elizabeth	5	0	6	3	6	16	8	18	25	37
Westmoreland	0	27	1	0	2	1	0	0	3	28
Hanover	0	0	0	0	1	1	0	3	1	4
TOTAL	**48**	**750**	**57**	**453**	**62**	**489**	**17**	**302**	**184**	**1994**

Source: AuGD analysis of information provided by Jamaica Fire Brigade

Appendix 6 Breakdown of Genuine Fire Calls 2007-08 to 2012-13

Structural	Genuine Fire	Percentage
Brush	49,500	62.87%
Refuse Dump/Rubbish	10361	13.16%
Residential	7,674	9.75%
Electrical Equipment	4435	5.63%
Farm / Cultivated Land	2,081	2.64%
Commercial Buildings	2153	2.73%
Motor Vehicle	2,068	2.63%
Institutions	130	0.17%
Coal Kiln	128	0.16%
Hotels	72	0.09%
Animal Shelter	46	0.06%
Offices	62	0.08%
Places of Amusement	24	0.03%
Total	**78,734**	**100.00**

Source: AuGD analysis of fire statistics provided by Jamaica Fire Brigade