

Texas Fire Chiefs Association
DOCUMENT SUBMISSION FORM

Candidate Department: **Irving Fire Department**

Best Practice Standard: 11.01 Testing Standards

Proofs of Compliance Submitted:

1. General Procedure 1.4 - Annual Fire Apparatus Pump Testing
2. General Procedure 1.3 – Annual Aerial Device Testing
3. General Procedure 7.1 – Ground Ladders
4. Maintenance Personnel Certifications
5. Apparatus Replacement Plan
6. General Procedure 13.3 – Minor Tools and Equipment Accountability

Submitted By: Scott Johnson, Program Manager

Date:

Evaluator's Review

Evaluator:

Date Accepted:

1.4 ANNUAL FIRE APPARATUS PUMP TESTING

A. Purpose

To provide a standard in compliance with NFPA 1901: "Service Tests of Pumps on Fire Department Apparatus" for testing of fire apparatus pumps in the Irving Fire Department.

B. General Provisions

1. In order to provide reasonable safety for firefighters and victims during the use of fire apparatus pumps, the following shall apply:
 - a. Fire apparatus pumps shall be tested in accordance with the most recent version of the NFPA 1901.
 - b. The complete inspection and testing shall be conducted on an annual basis, after major repairs or overhaul, when the pump could have been subjected to unusual operating conditions of stress or load, or when there is reason to believe the usage has exceeded the manufacturer's recommended guidelines.
 - c. Fire apparatus pumps shall be inspected by station personnel during the weekly apparatus maintenance check, or after any situation in which the apparatus pump was subjected to unusual operating conditions that exceeded the manufacturer's recommended usage guidelines.
 - d. Should any failure, malfunction, or unusual operation or appearance occur, the fire apparatus will be placed out-of-service until the city maintenance mechanic visually inspects the apparatus and determines the apparatus is safe for use.

C. Annual Testing

1. Annual testing shall be coordinated by the Assistant Chief, Logistics, through a certified testing agency.
 - a. Results of the annual pump test and accompanying records shall be maintained at Fire Administration Headquarters in the "Fire Apparatus" file cabinet for a period not to exceed one (1) year after the fire apparatus is "retired" from service.

1.3 ANNUAL AERIAL DEVICE TESTING

A. Purpose

The purpose of this procedure is to establish a standard in compliance with the National Fire Protection Association (NFPA) 1914: "Standard for Testing Fire Department Aerial Devices" for the testing of all aerial devices within the Irving Fire Department (IFD).

B. Definitions:

Nondestructive Testing (NDT) – Methods used to inspect a structural component without physically altering or damaging the materials.

C. General Provisions:

In order to provide reasonable safety for firefighters and victims during the use of aerial devices, the following shall apply:

1. Aerial devices shall be tested in accordance with the most recent version of the NFPA 1914.
2. The complete inspection and testing, including the nondestructive testing defined in NFPA 1914, shall be conducted on an annual basis, after major repairs or overhaul, when the device could have been subjected to unusual operating conditions of stress or load, or when there is reason to believe the usage has exceeded the manufacturer's recommended usage guidelines.
3. Aerial devices shall be visually inspected by station personnel during the weekly apparatus maintenance check, or after any situation in which the aerial device was subjected to unusual operating conditions that exceeded the manufacturer's recommended usage guidelines.
4. Should any failure, malfunction, or unusual operation or appearance occur, the aerial device will be placed out-of-service until the city maintenance mechanic visually inspects the device and determines it is safe for use.

D. Annual testing

Annual testing for aerial devices shall be coordinated by the Assistant Chief, Logistics, through a certified testing agency.

1. Results of the annual test and accompanying records shall be maintained at Fire Administration Headquarters in the "Fire Apparatus" file cabinet for a period not to exceed one (1) year after the aerial device is "retired" from service.

7.1 - GROUND LADDERS

A. Purpose

To establish procedures for inspecting, maintaining and testing all ground ladders used by the Irving Fire Department.

B. Reference

1. NFPA 1932 – Current Edition
2. A reference copy of NFPA 1932 Standard on Use, Maintenance, and Service Testing of Fire Department Ground Ladders – Current Edition will be maintained at each work location containing Fire Department ground ladders.

C. Inspection of Ground Ladders

1. All ground ladders shall be inspected in accordance with the manufacturer's recommendation and NFPA 1932 Standard on Use, Maintenance, and Service Testing of Fire Department Ground Ladders.
2. Ground ladders shall be visually inspected each Monday utilizing IFD Form 6 and after each use. Ground ladders that are used in an emergency, other than as recommended, shall be removed from service, inspected and service tested prior to further use.
3. Visual inspection shall include, but not limited to, the following:
 - a. Heat sensor labels
 - b. All rungs for snugness and tightness
 - c. All bolts and rivets for tightness
 - d. Welds for any cracks or apparent defects
 - e. Beams and rungs for cracks, splintering, breaks, gouges, checks, wavy conditions or deformation
 - f. Butt spurs, for excessive wear or other defects
 - g. Halyards, for fraying or kinking
 - h. Roof hooks for sharpness and proper operation
 - i. Rungs, for punctures, wavy conditions, worn serrations, or deformation

- j. Surface corrosion
 - k. Ladder slide areas, for galling or absence of wax, if required by manufacturer
 - l. Proper operation of the pawl assemblies
 - m. Wire rope on 3 and 4 section ladders for snugness when the ladder is in the bedded position, to ensure proper synchronization of upper sections during operation
4. Any signs of damage or defect during a visual inspection shall be cause to remove the ladder from service until it has been repaired for fire service use or destroyed. Scratches and dents shall not be cause to fail a ladder if it passes the appropriate load test.

D. Maintenance of Ground Ladders

All ground ladders shall be maintained as specified in accordance with manufacturer's recommendation and NFPA 1932.

E. Testing of Ground Ladders

- 1. Testing will be done in accordance with NFPA 1932 Standard on Use, Maintenance, and Service Testing of Fire Department Ground Ladders – Current Edition.
- 2. Responsibility
 - a. Captains assigned to Station 11 will be responsible for the proper testing and documentation.
 - b. The Station 11 Captains shall compile all test records of ladders assigned to their shift and shall then forward them to the Assistant Chief, Operations prior to January 5th of the year following the test year (e.g. 2005 test records are due by January 5, 2006).
- 3. Frequency
 - a. At least annually
 - b. Any time a ladder is suspected of being unsafe
 - c. After the ladder has been subjected to overloading
 - d. After the ladder has been subjected to impact loading or unusual conditions of use

- e. After heat exposure
- f. After any deficiencies have been repaired, unless the only repair was replacing the halyard
- g. Before the ladder is placed in service for the first time

F. Scheduling

- 1. Ladders shall be tested in accordance with the following schedule.
- 2. Prior to scheduled testing at Station 11, ladders must be cleaned.

MONTH	STATION #	SHIFT	EQUIPMENT
January	10	A	E10
	10	C	XE10
February	9	A	T9
	9	B	XE9
	9	C	E9
March	8	B	E8
	8	C	T8
April	7	A	XE7
	7	B	T7
	7	C	E7
May	6	C	E6
June	5	B	E5
July	4	A	E4
August	3	B	E3
		B	XE3
September	2 Training	A	T2
		B	Training
		C	E2
October	1	B	E1
November			
December	Reserve	A	Reserve
	11	B	E11
	11	C	XT11

ETTC 2012



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IRVING FIRE DEPARTMENT APPARATUS REPLACEMENT PLAN



2013

APPARATUS REPLACEMENT PLAN/SCHEDULE

A. Abstract

The Irving Fire Department (IFD) has relied on a Capital Improvement Plan consisting of a replacement schedule for fire apparatus. This schedule was developed and based on vehicle age alone and did not consider other factors affecting the performance and reliability of these emergency response vehicles.

Fire apparatus is one of the most costly components used in the suppression of fires and to rescue victims from upper floors. It is fiscally prudent for fire administrators to develop multiple strategies and methods of justification for replacing out-dated apparatus in a timely basis.

B. Replacement Criteria

- Safety
- Maintenance Costs vs. Acquisition Cost (M/A)
- Mileage
- Engine Hours
- Age

Safety

Apparatus responding to emergency's place firefighters in a high risk situation on practically every call. One of the leading causes of firefighter deaths occur from responding to or returning from alarms. Developing a strategy based on firefighter safety will be the number one consideration for replacing out-dated apparatus.

The leading publication for developing an apparatus replacement strategy concerning safety is the National Fire Protection Association (NFPA). While these standards are not laws and are considered to be the minimum standard, they are widely accepted as

consensus or voluntary standards and are adopted as “best practices” in many fire departments.

The associated standards for fire apparatus can be found in NFPA 1901 Standard for Motorized Fire Apparatus. This is a broad over view that specifically addresses safety as it relates to the vehicles components. The other standard regarding safety as it relates to fire apparatus and more specific to the firefighter is found in NFPA 1500 Standard on Fire Service Occupational Safety and Health Program.

Maintenance Cost vs. Acquisition Cost

A ratio for IFD apparatus is 60/40 which accounts for a 100 percent lifespan. Keeping fire apparatus as frontline equipment for 100 percent of their lifespan does not leave any usefulness when it is placed in the reserve fleet.

As fire apparatus maintenance costs approach 60 percent of the purchase price, the apparatus will be rotated into the reserve fleet. The theory behind this strategy is for the apparatus to retain 40 percent of its optimal lifespan needed for dependability when the front-line apparatus is having preventive maintenance performed.

Mileage

Mileage by itself does not give a true reflection for the need to replace fire apparatus but should be used in conjunction with other replacement criteria. Many districts have varying traffic patterns, terrain and road conditions. One district may respond primarily on major thoroughfares while others respond in densely populated areas. The travel

distance in miles may be the same but the time spent responding can have vast differences.

In the IFD, fire apparatus routinely reach over 100,000 miles on the odometer. This mileage will be used as a baseline in conjunction with other criteria for replacement consideration.

Engine Hours

Fire apparatus spend a great deal of time idling at the scene of an emergency. The hard response miles and engine idle time combine to increase the overall wear and tear on a vehicles drive train.

Ford Motor Company has conducted studies on engine idle time and the results indicate Engine idling time equates to 33 driven miles per 1 hour of idling (Government Fleet 2007). This research has shown to be a more accurate indicator of true engine wear because it captures the total time the vehicle is in use. Mileage only captures when the vehicle is in motion.

Consideration will be made when fire apparatus indicate 5000 hours.

Age

The following guideline will be used as a component in determining the need to replace fire apparatus:

- 10-12 years for frontline pumpers
- 12-15 years for frontline aerials

- No more than 5 years as a reserve

C. Schedule

ENGINES	REPLACE (10 years)	RETIRE (15 years)
1 (2008) Spartan	2018	2023
2 (2009) Spartan	2019	2024
3 (2001) Pierce	2011	2016
4 (2000) Pierce	2010	2015
5 (2010) Spartan	2020	2025
6 (2010) Spartan	2020	2025
7 (2009) Spartan	2019	2024
8 (1999) Pierce	2009	2014
9 (2003) Pierce	2013	2018
10 (2003) Pierce	2013	2018
11(2008) Spartan	2018	2023
11A (2002) Pierce	*2017	*2022
Booster 9 (2004) Pierce	*2019	*2024
XE 53 (1995) Pierce	2005	2010
XE 3 (2001) Pierce	2011	2016
XE 5 (1999) Pierce	2009	2014
XE 6 (1995) Pierce	2005	2010
XE 10 (1995) Pierce	2005	2010

TRUCKS	REPLACE (12 years)	RETIRE (20 years)
2 (2009) Spartan	2021	2029
7 (1997) Pierce	2009	2017
8 (2006) Pierce	2018	2026
9 (2007) Pierce	2019	2027
XT 11 (1987) LTI	1999	2007
XT 52 (1989) Pierce	2001	2009

13.3 - MINOR TOOLS AND EQUIPMENT ACCOUNTABILITY AND INVENTORY

A. Purpose

Company Officers are responsible and accountable for apparatus of assignment and the tools and equipment assigned thereto. The Station Captain is responsible and accountable for the station and all apparatus and equipment assigned to the station.

B. Loss of Minor Tools and Equipment

1. Company Officers will be responsible for the inventory on both front line and reserve apparatus and when reporting for duty and after each fire or other emergency prior to departing the emergency location. Equipment lost at the emergency scene will be reported to the Incident Commander (IC) at the location in order that a thorough search for the item(s) may be completed prior to the last company departing the location.
2. Company Officers will report any lost or misplaced equipment promptly to the appropriate Battalion Chief. Medical equipment reported missing shall require the Shift Duty Officer (SDO) to also be notified. A report to the Battalion Chief and/or SDO will be made within one (1) hour of shift change if the loss is discovered upon reporting for duty. In the event the loss is not reported to the Battalion Chief/SDO within the one (1) hour period, the Company Officer on duty will be responsible for the lost or missing item. In the event the Company Officer, Station Captain and station personnel are unable to locate the missing item(s) by timely follow-up action, the Company Officer will complete a "Report of Loss of Minor Tools and Equipment" (IFD Form 11) and an IFD Memo explaining the circumstances related to the lost item(s). Both of these forms will be forwarded to Fire Administration, through channels. The same procedure will be applicable to the Station Officer for station tools and equipment.
3. In the event the Officer reporting for duty reports the lost item(s) to the Battalion Chief/SDO within the first (1st) hour and the item(s) are not found, the Officer who worked the previous shift shall be responsible to submit the "Report of Loss of Minor Tools and Equipment" (IFD Form 11) and an IFD Memo explaining the circumstances related to the lost item(s). This report shall also include an explanation as to why the loss was not previously reported.

C. Marking of Minor Tools and Equipment

1. All minor tools and equipment shall be clearly marked with the assigned company identity or station number.

2. Visibility is often a problem at emergency scenes when attempting to locate and identify equipment. The company identity should be white letters and numbers on dark backgrounds and black letters and numbers on light backgrounds.
3. Reserve equipment shall be marked with a “safety yellow” color. Small hand items will be painted in “safety yellow” and the company identity shall be in black. Larger items will have a “safety yellow” background with black letters and numbers.
4. The company identity shall be “E” and the engine number for engine companies, “T” and the truck number for truck companies, “XE” and the extra engine number, etc.
5. Stencils may be utilized for marking larger items. The identity should be hand painted on smaller items.
6. The location of the company mark on each item should provide for ease of identity and be clearly visible when the item is mounted on the apparatus.
7. The company mark should be so located that regular use of the item would not cause the identity to become illegible.
8. Station Captains are responsible for the proper marking and accountability of equipment assigned to extra apparatus and any support equipment assigned to their stations.

D. Monthly Apparatus and Support Equipment Inventory

1. Station Officers shall see that all equipment carried on fire apparatus assigned to their station are inventoried on the first (1st) day of each month.
2. Station Officers shall see that all support vehicles and trailers assigned to their station are inventoried on the fifteenth (15th) day of each month.
3. Members shall utilize Inventory Control Sheets located on the J-Drive in their stations folder. Members conducting the inventory shall print a copy of the Inventory Control Sheet specific by apparatus or equipment, identify the quantity of equipment, and notate any discrepancies found.
4. Station Officers shall notify the appropriate Battalion Chief by email of any inventory discrepancies found prior to 17:00 on the day of inventory.

E. Record Retention

1. Inventory Control Sheets shall be retained for one (1) year.
2. Station Officers shall sign and date the Inventory Control Sheets and file them in the station file cabinet sorted by apparatus or support equipment. The oldest Inventory Control Sheets shall be destroyed.

Example: January 2014 is destroyed and replaced with January 2015.

F. Inventory Control Sheet Templates

1. Fire Administration shall keep a master Inventory Control Sheet for all fire apparatus and support equipment.
2. Station Officers shall submit a memo to Chief of Department requesting the addition or deletion of items on the Inventory Control Sheets.