


City of Alexandria, Virginia

MEMORANDUM

DATE: APRIL 20, 2011

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: JAMES K. HARTMANN, CITY MANAGER 

SUBJECT: ACCEPTANCE OF THE PORT SECURITY GRANT FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FOR ACQUISITION OF A NEW FIRE BOAT FOR THE ALEXANDRIA FIRE DEPARTMENT

ISSUE: City Council consideration of acceptance of a grant award in the amount of \$1,230,000 from the Federal Emergency Management Agency (FEMA) for the acquisition of a new fireboat for the Alexandria Fire Department.

RECOMMENDATION: That City Council authorize the City Manager to:

1. Accept the grant award from FEMA for a new fireboat;
2. Execute all of the necessary Federal grant documents that may be required;
3. Commence a competitive process for obtaining a new fireboat not to exceed \$1,417,000 as approved in the February 3, 2010, docket item, and not to exceed 50 feet in length; and,
4. Trade-in or sell the City's existing Fireboat to offset a major portion of the costs of the new fireboat not covered by the federal grant.

ALTERNATIVE: As an alternative Council could accept the grant, authorize the City Manager to execute the required documents, **limit the total funding to the grant award amount, and direct staff to purchase a smaller fireboat and allocate the proceeds of the sale of the current fireboat to other eligible Fire Department purposes.**

BACKGROUND: On February 3, 2010, City Council authorized the Fire Department to apply for a FEMA Port Security Grant in the amount of \$1,417,500 for the acquisition of a new, 44-foot fireboat with a pumping capacity of 3,975 gallons per minute (gpm).

To be viewed more competitively, the Fire Department subsequently reduced the application package to \$1,230,000 in an effort to secure funding. FEMA has awarded the Fire Department a grant of \$1,230,000 for a new fireboat. The difference of \$187,000 between grant funding and the estimated cost for a new fireboat requires added local monies and is addressed below.

DISCUSSION: The Fire Department projects that the price ceiling for the new fireboat will not exceed \$1,417,000. Upon commissioning of a new fireboat, the Department plans to declare surplus and trade-in or sell the current fire boat to offset a major portion of the difference in the estimated cost of the new boat and the grant amount. However, there are several variables that will impact service delivery:

Engine Size – Originally, in February 2010, the Fire Department had proposed the acquisition of a 44-foot fire boat. The size of the engine drives the size of the boat. Since the submission of the February 2010 docket item, the Environmental Protection Agency has changed the emission standards and pollution control requirements for marine engines. As a result to create higher pumping capacity, boat engines are now larger, containing the equipment needed to meet the new environmental standards.

If the boat length is fixed at 44 feet, the engine size will have a maximum pumping capacity of 3,000 – 4,000 gpm, and could be less. In order to secure an engine with the pumping capacity now recommended by the Fire Department would require an increase in the overall size of the boat by four to six feet to an overall length of 48-50 feet.

Pumping Capacity - The current City fireboat is a 30-foot boat purchased eight years ago with a pumping capacity of 1,500 gpm. In the February 2010 docket item the Fire Department had proposed that the new fireboat have a pumping capacity of 3,975 gpm. The Fire Department now recommends that the new fireboat have an enhanced pumping capacity of 7,000 – 8,000 gpm. The reason for the increased pumping capacity is due to the National Fire Protection Association’s (NFPA) classification standards. Based on the number of gallons per minute, NFPA sets five different classes for a fireboat, with Class 1 being the highest and Class 5 being the lowest. Anything below 4,500 gpm would be considered a Class 4 standard.

With a 48-50 foot boat, the new fireboat could have up to a pumping capacity of 7,000 – 8,000 gpm. The size of the engine would be larger than if the boat were 44 feet in length, but the boat size would be no larger than 50 feet. The increased engine size and pumping capacity would result in faster water flow for emergencies in Old Town, the current and future Waterfront, and the Woodrow Wilson Bridge.

Old Town and Waterfront – While any incident on the Potomac River is the responsibility of the District of Columbia or Prince George’s County, any incident involving a boat or vessel tied up to or connected to the City’s docks is the responsibility of the City. A fireboat assists in managing the City’s responsibility for an incident that could occur on City waterfront property. In practical terms however, the District of Columbia and Prince George’s County do not have sufficient resources to carry out their legal responsibilities, putting the City in a response mode in assisting or leading a response to incidents in the river.

A boat with a larger pumping capacity will assist with the water supply when fighting fires in Old Town. The new fireboat can protect the Potomac River side of the waterfront’s buildings and all moored vessels better than any other piece of land-based apparatus.

Woodrow Wilson Bridge - The requirement for enhanced pumping capability is a recent development that arose from the Fire Department's work with URS Engineers on the Woodrow Wilson Bridge (WWB) fire suppression/pipeline study. URS Engineers have confirmed that two, 4,000 gpm pumps would be needed on the WWB to address a major, multi-vehicle accident. For a new fireboat, this would translate into an 8,000 gpm capacity. The enhanced capacity is required to protect the WWB's four independent dry pipe systems that are made up of two pipes per system. The water capacity of one pipe from the WWB draw span to the Virginia abutment is approximately 3,300 gallons, and it is 5,000 gallons from the draw span to the Maryland abutment. To fill one system, 6,600 gallons are required on the Virginia side and 10,000 gallons per system are required on the Maryland side. Therefore, to achieve effective water delivery and application on the WWB, the boat pumps must be sufficiently sized to move significant amounts of water and fill multiple pipes in a short time period.

Once the current fireboat arrives at the base of the WWB in response to a bridge incident and connects to the WWB dry pipe system, it takes approximately four minutes to fill one Virginia side system and another minute or two to gain sufficient pressure for the hose nozzles to operate. A Maryland side system takes approximately 6.5 minutes and another two or three minutes¹ to gain sufficient pressure for the hose nozzles to operate. However, if the new fireboat could pump 7,000-8,000 gpm, those same pipes would be filled in approximately one minute and would develop adequate pressure in less than one minute. The larger pumping capacity would lead to faster water delivery and pressure in an emergency situation.

The Fire Department, working with URS Engineers on the WWB standpipe upgrade design study (now at the 50% design stage), has been provided a preliminary cost estimate for the WWB standpipe upgrade of \$9.0 million. It is highly unlikely that with their current budget issues, the Federal Government will approve funds for this system. Although most of the WWB is in Maryland, and is a joint responsibility of the State of Maryland and the Commonwealth of Virginia, neither state appears willing to make this capital investment. This significant cost, based on the recently received design report from URS engineers, would indicate that there is a need for a City fireboat with enhanced pumping capability.

¹ From Station 201 departure to securing full water pressure for hoses to operate on the Bridge requires approximately 14 minutes. The time periods cited to fill WWB systems with water commence *after* the Fireboat arrives at the Bridge and *after* the water pumps are connected to the WWB dry pipe system.

The table that follows displays the options in terms of capacity:

Table 1: Fireboat Size and Pumping Capacity

	Current Fireboat at 30'	New Fireboat at 44'	New Fireboat at 48'-50'	New Fireboat at 50'+
Pumping Capacity (gpm)	1,500	3,000-4,000 ²	7,000 – 8,000	10,000+
NFPA Classification (1 is best; 5 is least)	Class 4	Class 4	Class 3	Class 2
Approximate time to fill 1 (of 4) Wilson Bridge independent systems comprised of 2 pipes each	4-5 minutes	3 minutes	1 minute	Less than 1 minute
Approximate time after pipes are filled to deliver adequate water supply for an incident	2 minutes ³	90 seconds ⁴	Less than 1 minute	Less than 1 minute

Interim Berthing: Regardless of whether a new fireboat is 44 feet in length or 48-50 feet in length, it would exceed the size of the current City fireboat length of 30 feet and must be berthed somewhere along the waterfront.

After reviewing possible berthing sites on the waterfront, the City has concluded that the best interim site at which to dock the new 48-50 foot fireboat (pending implementation of a future Waterfront Plan) remains the City Marina. The new fireboat can be berthed in a generally non-leased space just south of the Cherry Blossom at the centered City Marina pier. This would require the building of a gangway and small floating dock at a cost of about \$28,000. A portable pump would have to be purchased at a cost of approximately \$6,000. Approximately \$1,900 in transient revenue may be foregone with occupancy of the centered pier space by the new fireboat; however, this potential revenue loss would be more than offset by making available for lease the space currently occupied by the existing Fireboat 201. Availability of this space for lease could result in a potential gain in annual revenue in the range of \$2,700 - \$3,100. The Fire Department expects that it will take approximately 12-14 months before the new fireboat is accepted by, and delivered to the City.

² Due to new EPA standards which require restrictions on pollution control, if the boat size remains the same as submitted in February 2010 (44 feet), the engine size put into the boat must be smaller than originally estimated. This will result in a lower pumping capacity than initially suggested as the engine size will have to be smaller.

³ 2 minutes for small incident, e.g., single vehicle; inadequate for major incident, e.g., multiple vehicles.

⁴ 90 seconds for small incident, e.g., single vehicle; inadequate for major incident, e.g., multiple vehicles.

FISCAL IMPACT: This grant does not have a cash-match requirement. The City is responsible for the normal administrative costs associated with each grant, including financial and reporting oversight provided by the Fire Department, as well as by the Office of Management and Budget, and the Finance Department. The current FEMA grant provides \$1,230,000 of funding. The new 50 foot fireboat cost is estimated to cost \$1,417,000. We expect to trade-in or sell the current Fireboat 201 to make up the \$187,000 difference to total \$1,417,000.

The current fireboat is staffed by Fire Department personnel assigned to Fire Station 201 (Prince Street). No new staffing will be needed to operate the proposed larger fireboat.

If Council decides to support a new fireboat that can be funded for the amount of grant funding provided, we would declare the current fireboat surplus, dispose of it and use the proceeds for fire programs or equipment allowed by the grant and legislative requirements.

The new fireboat will consume more fuel than the current Fireboat 201; however, the new fireboat, especially in early years of operation, will require less investment in maintenance and repair than the older City fireboat. The current fireboat used \$3,285 worth of fuel from February 2010 to February 2011; the Fire Department expects those costs to double due to increased fuel use and price hikes. The Department anticipates that the new boat will come with a warranty of at least five years and a hull warranty of 10 years. The Department should not experience the same levels of down-time as are currently being experienced, e.g., for the past seven months, Fireboat 201 has experienced 65 days out of service for maintenance and repair.

The current fireboat was purchased over eight years ago primarily with Virginia Department of Fire Programs (VDFP), Aid to Localities funding. This is Commonwealth funding that the City receives as a result of providing fire protection and can only be used on certain items as specified by VDFP and cannot supplant local funds. Fire Programs covered a majority of the cost of the old boat (\$217,000 out of total cost of \$247,000). VDFP has advised the City that any proceeds from the trade-in or sale of the old boat can only be applied to purchases authorized under the Virginia Code (§ 38.2-401), including a new fireboat (i.e., the funds cannot be returned to the City's General Fund for other uses).

The Department has received informal estimates on the value of a trade-in for the existing Fireboat 201 in the \$200,000 range. More precise figures will be available as we near the delivery date of the new Fireboat. If additional funds are required to meet the \$1,417,000 estimate beyond the expected trade-in value, those funds will be allocated from the Fire Department's apparatus replacement fund.

The gangway and floating dock that would need to be constructed at an estimated \$28,000 cost would be funded from the Fire Department's Capital Facilities Maintenance Program (CFMP) capital improvement program (CIP) account.

STAFF:

Adam K. Thiel, Fire Chief
James Lynch, Chief, Administrative Services, Fire Department
John North, Battalion Chief
Matt Bosse, Fiscal Officer II, Fire Department
Mayuri Middough, Fiscal Officer I, Fire Department



FIRE DEPARTMENT

FEMA Port Security Grant Award

New Fireboat Acquisition

Presentation to Council

April 26, 2011



Fire Department

Actions Requested of Council

Authorize City Manager to:

- Accept the Port Security Grant (PSG) from FEMA for New Fireboat;
- Execute All Necessary Federal Grant Documents;
- Commence a Competitive Process to Acquire a new Fireboat:
 - Cost Not to Exceed \$1,417,000;
 - Boat Length Not to Exceed 50 feet;
- Trade-In or Sell the City's Existing Fireboat to Offset a Portion of New Boat Costs not Covered by Grant

Fire Department

Grant Application and Award

- February 3, 2010: Council Authorized City Manager to Apply for Port Security Grant:
 - Estimated Cost: \$1,417,400. No Match Required.
 - Estimated Length of New Fireboat: 44 Feet.
 - Estimated Pumping Capacity of 3,975 gallons per minute (GPM)
 - Replace Existing Fireboat 201; Sell or Trade-In
- February 15, 2011
 - Grant Award of \$1,230,000. No Match Required.
 - Application Adjusted Downward by \$187,000 to be More Competitive
 - Difference to be Managed through Sale or Trade-In of Current Fireboat
 - Existing Fireboat 201 Purchased Primarily with Virginia Grant Funds (88%)
 - Per State, Proceeds can only be Used for Fire Department Purposes, including Purchase of New Boat



Fire Department

Changes in Fireboat Requirements

Fireboat Size/Length/Pumping Capacity:

- Engine Size Drives Boat Size
- Engine Size Driven by Pumping (GPM) Requirements that are also Driven by:
 - EPA Standards for Emissions and Pollution Control
 - NFPA Fireboat GPM-Based Classifications
- Changes Proposed:
 - Current Fireboat: 30 Feet and 1,500 GPM
 - Docket Proposal: 44 Feet and 3,975 GPM
 - Current Proposal: 48-50 Feet and 7,000 – 8,000 GPM



Fire Department Need for GPM Changes

Greater Pumping Capacity Can Address Incidents:

- On City Waterfront Property
 - Incidents on River Responsibility of DC and PG County
 - Neither Have Adequate Capacity to Address all River Incidents
 - City Responsible for Incidents on City Docks
 - Opportunity to Secure Capacity Now for Future Waterfront Development
- In Old Town
 - Supplement Water Supplies in Old Town
 - Protect Potomac Side of Waterfront Buildings Better than Land-Based Apparatus, Now and Future



Fire Department

Need for GPM Changes, Con't

- On Woodrow Wilson Bridge (WWB)
 - Preliminary Results from COG-Sponsored Study of WWB Fire Suppression-Standpipe Alternatives
 - Study Undertaken to Develop Specifications for Alternative to Pumping Water to WWB Standpipes from City's Fireboat
 - Two 4,000 GPM Pumps Estimated to be Needed for Major, Multi-Vehicle Accidents
 - Preliminary Cost Estimate of \$9.0M for WWB Standpipe Upgrade
 - Cost Unrealistic Given Federal Deficit Reduction Exercises
 - Enhanced Fireboat Pumping Capacity:
 - 48-50 Foot Boat could Pump 7,000 – 8,000 GPM
 - Fill Standpipes* in 1 Minute; Adequate Pressure in 1 Minute
 - Compares to Current Fireboat:
 - Virginia Side: Fill Standpipes* in 4 Minutes; Pressure in 1-2 Minutes
 - Maryland Side: Fill Standpipes* in 6.5 Minutes; Pressure in 2-3 Minutes

**Note: After Expending 14 Minutes to Arrive at WWB and Secure Hoses for Pumping*



Fire Department

Summary: Port Security Grant Award

- Fire Department and Procurement will Competitively Secure Boat Construction Contractor:
 - Recommended Pumping Capacity at 7,000 – 8,000 GPM
 - Address City Needs Now and in Future
- Adhere to Price Ceiling of \$1,417,500
- If Needed, Specifications May be Changed to Meet Price Ceiling
 - Part of Negotiation Process