

CITY COUNCIL WORK SESSION ON THE FIRE DEPARTMENT

TUESDAY, MARCH 24, 2009

5:30 P.M.

COUNCIL WORK ROOM

AGENDA

- | | | |
|-----|--|---------------------------|
| I. | Welcome and Opening Comments | Mayor William D. Euille |
| II. | Fire Department Presentation | Adam K. Thiel, Fire Chief |
| | A. FY 2010 Budget Request | |
| | B. Strategic Planning | |
| | C. Edsall Road Incident/Routley Report | |
| | D. Department Facilities | |

Individuals with disabilities who require assistance or special arrangements to participate in the City Council Work Session may call the City Clerk and Clerk of Council's Office at 703-838-4500 (TTY/TDD 838-5056). We request that you provide a 48-hour notice so that the proper arrangements may be made.



**Alexandria
Fire
Department**

**Presentation to
Mayor and Council**



Strategic Planning

Strategic Planning



1

Vision Statement

**Dedicated to our
Community, our
Profession and
Each Other**



2

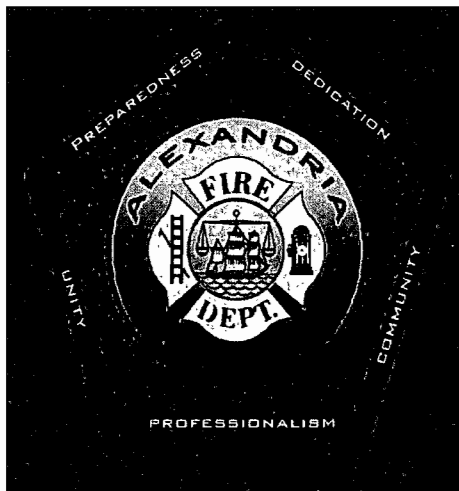
Mission Statement

The mission of the Alexandria Fire Department is to plan for and deliver responsive and caring emergency service, mitigate emergencies and disasters, prevent the loss of life, protect property, and enforce applicable construction, fire, and building maintenance codes for City residents and the general public in order to maintain and enhance public safety.

3

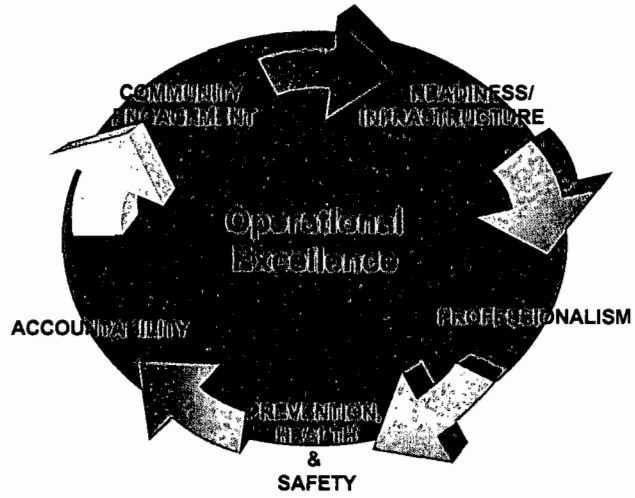
AFD Core Values

- **Unity**
- **Community**
- **Dedication**
- **Preparedness**
- **Professionalism**



4

Focus Areas



Strategic Planning Status: From Conceptual ...

- Developed Vision, Values, Goals
- Completed Appreciative Inquiry (AI) Process
 - Led by GMU Graduate Students
 - Focus on “What’s Right with the Department” vs. “What’s Not Working”
 - Provided Values Statements
 - Identified and Prioritized Change “Possibility Propositions”
- Established Five Focus Areas
 - Established Five Focus Area Strategic Teams (FAST)
 - Each has 8-10 Members from throughout Department
 - Chartered to Propose, Design and Develop Change Activities and Plans
 - Include Previously Identified Issues, AI Propositions, Consultant Recommendations, New Ideas

Strategic Planning ... To Tactical

- **January: FAST Teams Proposed High-Level Plans and Actions**
- **February: Held Two-Day Work Session on Actions and Plans**
 - **Approximately 50% Finalized; Short-Term in Nature**
 - **Subsidiary Task Forces Chartered for More Complex, Longer-Term Plans and Actions**
- **March: Present Actions and Plans to full Strategic Planning Team for Review, Approval**

Strategic Planning

Sample Actions and Plans

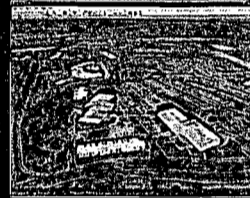
- Crash & Injury Investigation Program
- Position Expectations, Roles & Guidelines
- Station Inspection Policy
- “After-the-Fire” Neighborhood Outreach
- Employee Career Progression Matrix
- Diversity, Leadership, Management, Supervisory Training

- Physical Training - Wellness Program
- Internal Communications Plan
- Employee Skills Inventory
- Department - Specific Performance Evaluation Guidelines
- Partnering with Citizen Organizations
- Customer Service Training



**Routley Report
Recommendations**

6101 Edsall Road Fire Incident Analysis



CoA Department Head Meeting
September 4, 2008
Adam K. Thiel

 Alexandria, VA

Overview

- The day
- The building
- The fire
- Outcomes
- Investigations
- Findings
- Next steps



 Alexandria, VA

August 25, 2007

- High heat (94° F) and humidity
- 21 working incidents over a 2-hour period
 - King Street electrical/gas emergency
 - Severe thunderstorm-triggered:
 - Reported fires
 - Automatic alarm activations
 - Traffic accidents
 - Elevator rescues
 - 3-alarm high-rise fire (6101 Edsall Road)
 - 2-alarm hotel fire (Bluestone Road)



6101 Edsall Road

- Alexandria Knolls West
 - 18-story condominium complex
 - ~300 residents
 - Fire resistive construction
 - Automatic fire alarm system
 - Two standpipes
 - No automatic fire sprinklers



The Fire

- Reported lightning strike with smoke in the lobby and fire in an elevator shaft
- 1st-Alarm dispatched at 1949H:
 - 4* engines, 2* trucks, 1 rescue, 1 medic, 2* battalion chiefs (BCs), 1 command aide
- Fire discovered on 3 floors (8, 18, roof)
 - Smoke on all 18 floors and both stairways
- Multiple occupants requiring evacuation or rescue

 Alexandria, VA

The Fire

- 2nd-Alarm dispatched:
 - 3 engines, 1* rescue, 1 medic, 1 BC, 1 EMS supervisor, 1 light/air unit
- Level-2 Rapid Intervention Team (RIT):
 - 1 engine, 1 truck, 1 rescue, 1 BC
- Additional EMS units:
 - 1 EMS supervisor, 1 medic
- 3rd-Alarm dispatched:
 - 3 engines, 1 truck, 1 medic, 0* BC

 Alexandria, VA

Outcomes

- Fires extinguished
- Entire building evacuated
- 4 occupants rescued
 - Aerial ladder or carried downstairs
 - Transported to hospitals by additional EMS units
- 6 firefighters (FF) injured
 - 1 Fairfax, 5 Alexandria
 - 3 Alex. FF admitted to hospital (1 in ICU)

 Alexandria, VA

Investigations

- AFD Code Enforcement Bureau
 - Fire cause and origin
- AFD Fire Chief's Office
 - Incident analysis
- Virginia Occupational Safety and Health
 - Catastrophic incident investigation

 Alexandria, VA

Findings

- **Communications**
 - Capacity
 - Training
 - Equipment
- **Command**
 - Capacity
 - Training
 - Equipment



 City of
Alexandria, VA

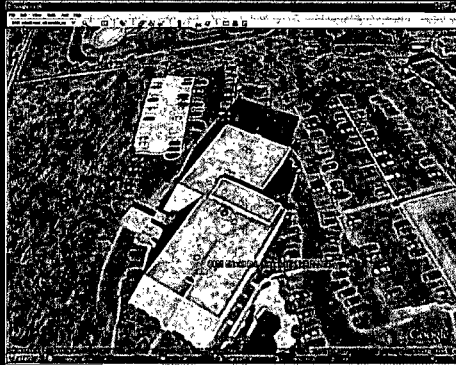
Findings

- **Procedures**
 - Emergency Management interface
 - Fire Marshal interface
- **Coordination**
 - Regional resource deployment
 - Dispatch coordination

 City of
Alexandria, VA

Findings

- Safety
 - Capacity
 - Training
 - Culture
 - Oversight



 Alexandria, VA

Findings

- Resources
 - Capacity
 - Engine/truck staffing
 - Rescue company staffing
 - Support staffing
 - Regional mutual-aid system



 Alexandria, VA

Next Steps

- Appointed 3 shift health/safety officers
 - Approved in FY2009 Budget
 - 24/7/365 coverage begins in late-September
- Applied for federal SAFER Act grant
 - Partial offset of costs associated with achieving 4-person minimum staffing on one fire company
 - Status unknown.
- Completing phased implementation plan for the balance of consultant's recommendations

Questions?

City of Alexandria, Virginia

MEMORANDUM

DATE: FEBRUARY 21, 2008
TO: ALEXANDRIA FIRE DEPARTMENT EMPLOYEES
FROM: ADAM K. THIEL, FIRE CHIEF *ak7*
SUBJECT: VIRGINIA OCCUPATIONAL SAFETY AND HEALTH (VOSH) CITATION

After the August 25, 2007, 3-alarm fire at 6101 Edsall Road, the Virginia Occupational Safety and Health (VOSH) agency investigated the circumstances leading to the injuries of several Alexandria firefighters. With their investigation now concluded, VOSH has issued the attached citation for posting in all AFD work locations. The Fire Department was cited by VIOSH for not ensuring that self-contained breathing equipment was used by firefighters engaged in fighting this interior structure fire.

Since this incident occurred, we have taken a number of steps to address the issues noted in the citation:

- Mandatory self-contained breathing apparatus (SCBA) refresher training was recently completed;
- Three shift safety officers were requested in the City Manager's FY2009 Alternative Budget proposal;
- We submitted a grant proposal to renovate the burn building and improve our ability to deliver live-fire training;
- Incident Command System (ICS) training has been delivered to supervisors and managers;
- We are working with the Virginia Department of Labor and Industry to become the first Virginia fire department accepted into the prestigious Voluntary Protection Program (VPP);
- We have established "Health and Safety" as one of the Alexandria Fire Department's five 2008 focus areas.

Our comprehensive internal after-action review/response to this incident is nearing completion and will contain a number of additional plans for improvement. We are *fully committed* to ensuring the health, safety, and wellness of all AFD employees and will continue seeking opportunities to safely achieve operational excellence in service to our community.

Virginia Department of Labor and Industry

Occupational Safety and Health Compliance
10515 Battleview Parkway
Manassas, VA 20109
Phone: (540) 535-2879 FAX: (540) 722-3418



Citation and Notification of Penalty

To:
City of Alexandria Fire Department
and its successors
900 2nd Street
Alexandria, VA 22314

Inspection Number: 311421556
Inspection Date(s): 08/29/2007 - 09/21/2007
Issuance Date: 02/20/2008

Inspection Site:
6101 Edsall Road
Alexandria Knolls Apartments
Alexandria, VA 22304

The violation(s) described in this Citation and Notification of Penalty is (are) alleged to have occurred on or about the day(s) the inspection was made unless otherwise indicated within the description given below.

Described herein are alleged violations of Virginia's Occupational Safety and Health Laws, standards and/or regulations. Any penalty proposed is based on the corresponding violation. In accordance with Virginia Code §40.1-49.4 B, you must abate all alleged violations by the dates listed and pay the penalties proposed, unless, within 15 working days (excluding weekends and Federal and State holidays) from the date you receive this citation, you submit a notice of contest to the Virginia Department of Labor and Industry Regional Office at the address listed above. Issuance of this citation does not constitute a finding by the Commissioner that you have violated the law, standard or regulation described unless you fail to file a notice of contest or this citation is affirmed by a court of law.

Please read the enclosed booklet entitled Employers Rights in conjunction with this citation to learn your rights and responsibilities.

Posting - Virginia law requires you to immediately post a copy of this Citation in a prominent place at or near the location of the violation(s), or, if it is not practicable because of the nature of your operations to do so, in a place where it will be readily observable by all affected employees. This Citation must remain posted until the violation(s) have been abated, or for 3 working days (excluding weekends, State and Federal holidays), whichever is longer. **The penalty amounts may be marked out or covered up prior to posting. It should be noted that these amounts, however, are releasable by the Department in response to a Freedom of Information Act (FOIA) request.**

Informal Conference - You have the right to an informal conference with the VOSH Compliance Manager at which you may present evidence which you believe supports amending either the citation or penalties proposed. An informal conference, which is held during the 15 working day contest period, is optional. If you wish to attend an informal conference, you must contact the VOSH Compliance Manager at the Regional Office listed above

If you request an informal conference, you must notify your employees of the time and place. Be sure to bring to the conference any documentation of existing conditions as well as abatement steps taken thus far. If conditions warrant, this matter may be resolved amicably without the need for litigation, by way of an Informal Settlement Agreement.

Requesting an informal conference does not extend the 15 working day contest period.

Right to Contest - You have the right to contest this Citation. You may contest all citation items or only individual items. You may also contest proposed penalties and/or abatement dates without contesting the underlying violations. **This citation and the penalties proposed will become a final order of the Commissioner of Labor and Industry unless you notify the VOSH Compliance Manager in writing within 15 working days of receiving this citation that you contest the citation or any part thereof.**

Penalty Payment - Penalties are due within 15 working days of receipt of this notification unless you contest. Make your check or money order payable to "Commonwealth of Virginia". Please indicate the Inspection Number on the check or money order.

The Virginia Department of Labor and Industry does not agree to any restrictions or conditions or endorsements put on any check or money order for less than the full amount due, and will cash the check or money order as if these restrictions, conditions, or endorsements do not exist.

Notification of Corrective Action - For violations which you do not contest, you should notify the VOSH Compliance Manager at the Regional Office promptly, by completing the enclosed Report on Correction of Violations form, that you have taken appropriate corrective action by the date(s) specified in this citation. The form must include abatement steps you have taken and the dates, together with adequate supporting documentation, e.g., drawings or photographs of corrected conditions, purchase/work orders related to abatement actions, air sampling results, etc.

Employer Discrimination Unlawful - The law prohibits discrimination against an employee who has filed a complaint or who has exercised any rights under the Labor Laws of Virginia. An employee who believes that he/she has been discriminated against may file a complaint no later than 30 days after the discrimination occurred with the Virginia Department of Labor and Industry, Occupational Safety and Health Discrimination Office at Powers-Taylor Building, 13 South Thirteenth Street, Richmond, Virginia 23219.

Notice to Employees - The law gives an employee or his/her representative the opportunity to contest any abatement date set for a violation if he/she believes the date to be unreasonable. The contest must be mailed to the Regional Office at the address shown above and postmarked within 15 working days (excluding weekends and Federal holidays) of the employers receipt of this Citation.



NOTICE TO EMPLOYEES OF INFORMAL CONFERENCE

An informal conference has been scheduled with VOSH to discuss the citation(s) issued on 02/20/2008. The conference will be held at the VOSH office located at Occupational Safety and Health Compliance, 10515 Battleview Parkway, Manassas, VA 20109 on 27 Feb 08 at 10:00A. Employees and/or representatives of employees have a right to attend an informal conference.

Virginia Department of Labor & Industry

Occupational Safety and Health Compliance

**Inspection
Number:**

311421556

Inspection Dates:

08/29/2007-09/21/2007

Issuance Date:

02/20/2008



Citation and Notification of Penalty

Company Name: City of Alexandria Fire Department

Inspection Site: 6101 Edsall Road, Alexandria Knolls Apartments, Alexandria, VA 22304

Citation 1 Item 1 Type of Violation: **Serious**

1910.156(f)(1)(ii): The employer did not assure that self-contained breathing apparatus respirators provided to and donned by firefighters engaged in interior structural firefighting efforts were worn during those efforts.

[NOTE: The Fire Brigades Standard, 1910.156(f)(1) also provides that "The employer must ensure that respirators are provided to, and used by, fire brigade members, and that the respirators meet the requirements of 1910.134 and this paragraph."

The Respiratory Protection Standard, 1910.134(g)(4)(iii) also provides that the "employer shall ensure that...all employees engaged in interior structural firefighting use SCBAs"]

On August 25, 2007, at Alexandria Knolls Apartments, 6101 Edsall Road, Alexandria, Virginia, 22304, City of Alexandria firefighters were engaged in firefighting operations in an 18-story high rise apartment building fire. As a result of the firefighting activities, five firefighters were sent to the hospital of which three were hospitalized for dehydration and smoke inhalation. One of the firefighters was placed in Intensive Care Unit.

Two truck crews were involved in this incident. Truck 208 was assigned to investigate and ventilate floors and Rescue Engine 206 was assigned to investigate the roof and perform an interior attack. The firefighters were provided with and wearing SCBAs with 45 minute air tanks (good for approximately 15-20 minutes of air under heavy physical exertion) as they progressed up a smoke-filled stairwell. The firefighters had to carry high-rise hose packs along with their normal turnout gear, which amounted to approximately 100 lbs of gear.

The investigation revealed that the stairwell was hazy with smoke with limited visibility and smoke was present on all floors within five minutes of arrival. The firefighters involved, including one of whom that was a captain, apparently decided to not use their air supply on the way up to assure that they had enough air remaining to combat the fire when they reached the upper floors.

The investigation further revealed that Fire Department procedures for high rise firefighting provide as follows:

"The first alarm units will not be able to take up spare cylinders. This means the Incident Commander MUST take immediate steps to begin moving air cylinders and their equipment upstairs." The extra cylinders are supposed to be placed at the "resource area at staging."

.....

See pages 1 through 3 of this Citation and Notification of Penalty for information on employer and employee rights and responsibilities.

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"Companies will begin to be rotated to rehab after approximately 15 minutes of work. Rehab should be at a location that is safe and clear of the fire, yet within a reasonable distance. The advantage of having Rehab on the same floor as staging is that units can receive necessary medical treatment and rest. As firefighters are available for reassignment, they can then move back into staging."

The investigation further revealed that the firefighters involved in the incident worked a shift of approximately one hour instead of the 15 minutes provided for under Department procedures, apparently due to staffing issues, and that none of them were provided with the ability to obtain spare air cylinders while on the upper floors.

**Date By Which Violation Must be Abated:
Proposed Penalty:**

**Corrected During Inspection
\$0.00**

Cynthia A. Rupert Sr. Safety Engineer
(sd) Mr. Clarence B. Brooks
VOSH Compliance Manager

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Occupational Safety and Health Compliance
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**INVOICE/
DEBT COLLECTION NOTICE**

Company Name: City of Alexandria Fire Department
Inspection Site: 6101 Edsall Road
Alexandria Knolls Apartments
Alexandria, VA 22304
Issuance Date: 02/20/2008

Summary of Penalties for Inspection Number 311421556

Citation 01, Serious	=	\$0.00
Total Proposed Penalties	=	\$0.00

Pursuant to Virginia Code § 40.1-49.4.A.4(a), the Commissioner of the Department of Labor and Industry has the authority to assess interest on all past-due penalties as well as administrative costs incurred in the collection of the penalties for violations of the Virginia Occupational Safety and Health Laws, regulations, and standards. Interest charges as assessed at an annual rate in accordance with Virginia Code § 2.1-732.

Interest shall accrue from the date on which the citation, either as issued or as amended, becomes a final order of the Commissioner. A citation becomes a final order 15 working days after the date that the employer receives the citation unless the employer files a notice of contest with the VOSH Compliance Manager. Interest is waived if the employer pays the full amount within 30 calendar days of the final order date.

A debt is past-due 30 calendar days after the final order date unless the employer has made a satisfactory payment arrangement with the Commissioner. If the debt remains unpaid for more than 90 days, it will be deemed delinquent and referred to the Office of the Attorney General or another collection agency for collection. All administrative costs incurred in collecting the debt will be added to the amount of the debt.

To avoid potential interest and collection costs, please remit payment promptly for the total amount of the uncontested penalties shown on the citation to the Accounting Office, Virginia Department of Labor and Industry, Powers-Taylor Building, 13 South Thirteenth Street, Richmond, Virginia 23219. You may use the enclosed self-addressed envelope. Please make your check or money order payable to: "Commonwealth of Virginia". Please indicate the Inspection Number on the payment. Do not remit payment to the Regional Office.

Cynthia B. Rupert, Sr. Safety Engineer 2/20/08
Date
Mr. Clarence B. Brooks
VOSH Compliance Manager

City of Alexandria, Virginia

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Virginia Department of Labor & Industry

Occupational Safety and Health Compliance

**Inspection
Number:**

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Date By Which Violation Must be Abated:

Corrected During Inspection

Proposed Penalty:

\$.00

Cynthia A. Rupert Sr. Safety Engineer
(sd) Mr. Clarence B. Brooks
VOSH Compliance Manager

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Issuance Date: 02/20/2008

Summary of Penalties for Inspection Number 311421556

Citation 01, Serious = \$0.00

Total Proposed Penalties = \$0.00

Pursuant to Virginia Code § 40.1-49.4.A.4(a), the Commissioner of the Department of Labor and Industry has the authority to assess interest on all past-due penalties as well as administrative costs incurred in the collection of the penalties for violations of the Virginia Occupational Safety and Health Laws, regulations, and standards. Interest charges as assessed at an annual rate in accordance with Virginia Code § 2.1-732.

Interest shall accrue from the date on which the citation, either as issued or as amended, becomes a final order of the Commissioner. A citation becomes a final order 15 working days after the date that the employer receives the citation unless the employer files a notice of contest with the VOSH Compliance Manager. Interest is waived if the employer pays the full amount within 30 calendar days of the final order date.

A debt is past-due 30 calendar days after the final order date unless the employer has made a satisfactory payment arrangement with the Commissioner. If the debt remains unpaid for more than 90 days, it will be deemed delinquent and referred to the Office of the Attorney General or another collection agency for collection. All administrative costs incurred in collecting the debt will be added to the amount of the debt.

To avoid potential interest and collection costs, please remit payment promptly for the total amount of the uncontested penalties shown on the citation to the Accounting Office, Virginia Department of Labor and Industry, Powers-Taylor Building, 13 South Thirteenth Street, Richmond, Virginia 23219. You may use the enclosed self-addressed envelope. Please make your check or money order payable to: "Commonwealth of Virginia". Please indicate the Inspection Number on the payment. Do not remit payment to the Regional Office.

Cynthia B. Rupert, Sr. Safety Engineer 2/20/08
Date
(s) Mr. Clarence B. Brooks
VOSH Compliance Manager

City of Alexandria, Virginia

MEMORANDUM

DATE: MARCH 20, 2008

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: JAMES K. HARTMANN, CITY MANAGER *J*

SUBJECT: REPORT ON ALEXANDRIA FIRE DEPARTMENT INCIDENT ANALYSIS
OF THE RESPONSE TO THE AUGUST 25, 2007, FIRE AT 6101 EDSALL
ROAD (ALEXANDRIA KNOLLS WEST)

ISSUE: Report on Alexandria Fire Department Incident Analysis of the response to the August 25, 2007, fire at 6101 Edsall Road (Alexandria Knolls West).

RECOMMENDATION: That City Council receive this report. Staff will discuss the budget impacts of the report recommendations at the April 1st Budget work session on public safety issues.

BACKGROUND: On August 25, 2007, the Alexandria Fire Department (AFD) responded to numerous emergency incidents resulting from a line of strong thunderstorms passing through the region. From 7:40 p.m. until 11:40 p.m. that night, the AFD Communications Center processed 288 calls, including thirty-one 9-1-1 calls. The most serious event was a three-alarm fire in the Alexandria Knolls West condominiums, an 18-story, unsprinklered high-rise building with approximately 300 occupants, located at 6101 Edsall Road.

The fire was caused by a lightning strike on the mechanical penthouse at the center of the building, igniting fires on several floors. Fire suppression and EMS units from the AFD, Fairfax County Fire and Rescue Department (FCFRD), and Arlington County Fire Department (ACFD) were dispatched on the first alarm at 7:49 p.m.; a second alarm was dispatched at 8:05 p.m., bringing additional units from all three jurisdictions; and a third alarm was dispatched at 8:59 p.m. In addition to evacuating the building, fighting the fires, and searching for incapacitated residents, firefighters rescued several occupants during the course of the operation, including one removed from a 5th-floor balcony by an aerial ladder tower truck.

Six firefighters were injured during the incident, five from the AFD and one from the FCFRD. Three of the AFD firefighters were admitted to INOVA Alexandria Hospital. One AFD firefighter spent several days in the intensive care unit and could not return to normal duty for more than one month.

DISCUSSION: Ensuring the safety of our City employees is extremely important. Our firefighters and paramedics often face dangerous situations when they respond to emergencies.

This August fire is an example of a life-threatening event that provides extraordinary challenges. Our goal is to ensure that we have the equipment, personnel, training, and procedures needed to meet such demands.

Given the complicated nature of the Fire-EMS operation and the severity of the firefighters' injuries, the City Manager's Office (CMO) retained an outside consultant to perform a comprehensive analysis of the fire at 6101 Edsall Road and the events leading to the outcomes experienced by the AFD.

The consultant, J. Gordon Routley, has served with the Phoenix, Arizona, Fire Department and was Fire Chief in Shreveport, Louisiana. He is a nationally recognized expert in fire incident investigation/analysis and currently leads the team reviewing the Charleston, South Carolina, fire that resulted in the death of nine firefighters.

The incident analysis of the August 25th fire at Alexandria Knolls West details a number of serious issues that negatively affect the ability of the Alexandria Fire Department to safely and effectively address emergencies in our community. Issues noted by the consultant include: a shortage of qualified/experienced personnel to adequately staff/operate the Fire Communications Center; the need for additional dispatcher training to handle 9-1-1 calls; preparation for EMS personnel to operate safely at fire incidents; the need for additional Fire-EMS incident management resources, training, and practice; a shortage of command officer support for major incidents; limitations of existing high-rise operating procedures; Fire computer-aided dispatch (CAD) system and mobile data browser (MDB) limitations; the need for enhanced regional mutual-aid coordination; the need for additional firefighters (from 3-person to 4-person minimum staffing) on engine and truck companies; the need for a fully-staffed heavy rescue company; the need for an additional battalion aide to provide support for each on-duty battalion chief; the need for a full-time light/air unit driver/operator to ensure 24/7/365 availability; and the need for three shift safety officers to provide round-the-clock, safety-focused oversight for employees involved in emergency incidents.

The Fire Department staff evaluated the consultant-prepared incident analysis to identify lessons learned and recommendations to improve the safety and effectiveness of the "all-hazards" fire and emergency services provided to City residents, business owners, and visitors. Actions taken to address issues raised in the consultant's report include: initiating a comprehensive study, by Kimball and Associates, of Police/Fire emergency communications capacity, organization, training, and technology; providing a salary market rate adjustment to Police/Fire emergency communications personnel; scheduling additional training opportunities on the National Incident Management System-Incident Command System (NIMS-ICS) for City employees; revising standard operating procedures (SOPs) for supporting major incidents with additional Fire-EMS command officers and Office of Emergency Management (OEM) staff; participating in regional efforts to provide CAD interoperability between jurisdictions (e.g., Alexandria, Arlington County, and Fairfax County); and including three Fire-EMS shift safety officers in my FY2009 Alternative Proposed budget.

A summary table of the consultant's recommendations, and related AFD actions, is included as Attachment 1. The consultant's complete report is provided as Attachment 2.

After the August 25th fire, the Virginia Occupational Safety and Health (VOSH) agency also initiated an investigation of what they termed a “catastrophic” event, since more than three employees were hospitalized overnight. While the VOSH investigation concentrated on the specifics of the injured firefighters’ experience(s) at the Alexandria Knolls West high-rise fire, the CMO-initiated incident analysis was conducted with a broad scope, assessing all aspects of the AFD’s response to the events of August 25, 2007.

On February 20, 2008, VOSH cited the AFD with a “serious” violation (Attachment 3) related to the injured employees’ use of respiratory protection equipment supplied by the AFD. The violation was technically corrected when the injured firefighters were removed from the fire building and no monetary penalty was imposed. However, during an “informal conference” with VOSH on February 27, 2008, Regional Director Paul B. Schilinski indicated the agency was looking for concerted action by the AFD to prevent such injuries in the future.

Issues described in the VOSH citation include: the inability of the AFD to ensure the proper use of self-contained breathing apparatus (SCBA) worn by firefighters performing interior structural firefighting tasks; the inability of the AFD to comply with high-rise firefighting procedures related to staging safety equipment within a building; and the inability to assure safe work-rest cycles (including rehabilitating firefighters subjected to the physical/mental strain of a high-rise fire) for employees. VOSH suggests these negative outcomes are related to staffing issues that are also described by the consultant who performed the CMO-initiated incident analysis.

City Council received a letter (Attachment 4) from the Alexandria Fire Fighters, Inc., IAFF Local 2141, dated February 25, 2008, concerning the VOSH citation and other issues related to the August 25th fire. I appreciate the concerns expressed by the Fire Fighters and President John Vollmer; we are committed to involving Local 2141, the other Fire-EMS labor groups, and all Fire Department employees as we address the recommendations described in the reports related to this incident.

FISCAL IMPACT: The consultant analysis has several recommendations that involve major funding increases for the Fire Department. Cost estimates for addressing the consultant’s recommendations are included in Attachment 1. Because of the significant funding involved, this would be a multi-year effort for us.

The staffing of Fire Department units with four people on a truck compared to our current staffing of three on a truck has been a long standing issue. Both Fairfax and Arlington Counties have been phasing in the four on a truck staffing over the past few years. Because of our mutual aid agreements with these two jurisdictions, this issue has been raised before. The consultant report also identifies four on a truck staffing as a method to increase firefighter presence at major fires. The implementation cost of four on a truck staffing of 36 positions (\$2.4 million for salaries and benefits, \$579,600 to outfit and train 36 new fire personnel) is very significant, and has not been included in the FY 2009 proposed budget nor in the current future year budget projections. There are also capital issues since not all fire houses may be large enough to accommodate this additional staffing. It should be noted that Prince William County is considering a major budget proposal to implement four firefighters on a truck following the

death of one of their firefighters in a major fire. We will be working with the Fire Chief to prepare a multi-year plan for the four on a truck proposal that can be discussed with Council at its fall retreat. There are many competing priorities for City funding, and Council needs to review this costly proposal in that context.

My FY 2009 Alternative Proposed budget includes \$342,489 to fund three shift safety officers in the Fire-EMS Department, as recommended by the consultant. We consider this FY 2009 proposal to be a high priority and plan to discuss this proposal and other recommendations related to this report at the April 1 Budget Work Session on Public Safety issues.

ATTACHMENTS:

Attachment 1. Summary table of consultant's recommendations from the Alexandria Knolls West Incident Analysis prepared by J. Gordon Routley.

Attachment 2. Alexandria Knolls West Incident Analysis—Complete Report prepared by J. Gordon Routley.

Attachment 3. Virginia Occupational Safety and Health (VOSH) citation issued February 20, 2008.

Attachment 4. Letter to City Council from Alexandria Fire Fighters, Inc., IAFF Local 2141, dated February 25, 2008.

STAFF: Adam K. Thiel, Fire Chief

Alexandria Fire Department Report on Consultant Recommendations from the August 25, 2007, Fire at 6101 Edsall

Road

Attachment 1 – March 25, 2008

Attachment 1

RECOMMENDATIONS	STATUS	Estimated Cost	Estimated Completion Date
1 Ensure that qualified and experienced personnel are always on duty in the (Fire) Communications Center	Actions taken to address this recommendation include: 1) a comprehensive study by an outside consulting firm, initiated by the City Manager's Office, to evaluate all aspects of the emergency communications function (Fire/Police) in the City; and 2) a salary adjustment, based on a regional market rate analysis, for all emergency communications personnel to address retention of Fire/Police communications staff.	1) May-08 2) Complete	\$ 50,000
2 Provide additional dispatcher training, particularly in dealing with building occupants who call 9-1-1 for assistance or instructions	The Fire Communications Coordinator has been invited to attend a train-the-trainer for Emergency Medical Dispatching (EMD) and Emergency Fire Dispatching (EFD) courses. This investment will allow the Coordinator to conduct in-house training for emergency communications technicians (ECTs) and back-up personnel in both the Fire/Police Departments.	\$ 5,000	Dec-08 (depending on funding)
3 Provide additional incident management system training for EMS supervisors	This training will be scheduled by the AFD Professional Development Division in FY2009.	\$ -	Dec-08
4 Dispatch EMS supervisors to box alarm incidents	This recommendation will be implemented after incident management system training for EMS supervisors is completed in December 2008.	-	Jan-09
5 Ensure that EMS personnel are properly trained and prepared to operate in Immediately Dangerous to Life or Health (IDLH) environments	The current structure of the AFD EMS Division does not allow EMS personnel to operate in IDLH environments. Staff is exploring other options for delivering advanced life support (ALS) in that setting.	-	N/A
6 Place additional emphasis on incident management training and simulations for complex and challenging incidents. (The organization must be prepared for situations that are more demanding than routine incidents and circumstances.)	The Office of Emergency Management (OEM) within AFD is enhancing its ability to provide training/practice in the National Incident Management System- Incident Command System (NIMS-ICS) to City employees. A federal grant-funded position is being assigned to provide additional training and the AFD is exploring options to further utilize NIMS-ICS for "routine" incidents to enhance familiarity during major events. Options for developing in-house NIMS-ICS simulation capability are also being pursued through a federal grant.	\$ 20,000	July-09 (depending on funding)

Alexandria Fire Department Report on Consultant Recommendations from the August 25, 2007, Fire at 6101 Edsall Road

Attachment 1--March 25, 2008

	RECOMMENDATIONS	Status	Estimated Cost	Estimated Completion Date
7	<p>Improve procedures for activating and assigning staff personnel during major incidents and high demand situations. (The senior staff officers are on a rotating schedule to provide an on call duty officer for major incidents at night and on weekends. Several additional staff officers could be called-upon, if needed; however there are no established procedures for calling or assigning them.)</p>	<p>Existing practices for activating additional command-level officers for major incident response are being assessed and new standard operating procedures (SOPs) will be prepared. Other options for bolstering daily command officer staffing/support are also being evaluated.</p>	<p>\$ -</p>	<p>July-08</p>
8	<p>Dispatch Emergency Management to assist evacuees</p>	<p>Practices for dispatching the Office of Emergency Management (OEM) to assist with a number of major incident support functions are being evaluated and new SOPs will be prepared.</p>	<p>\$ 4,000</p>	<p>July-08</p>
9	<p>Dispatch a command vehicle to major incidents</p>	<p>The AFD does not currently possess/operate a command vehicle (i.e., a specialized vehicle equipped with radios, computers, meeting space, etc.) to support operations at major emergency incidents. Interim options for providing command vehicle support are being evaluated, including enhancement/use of the APD command vehicle(s).</p>	<p>\$ 250,000</p>	<p>July-10 (depending on funding)</p>
10	<p>Revise the SOP for highrise incidents to address situations that do not fit the model of a fire on one floor</p>	<p>The high-rise firefighting guidelines followed by the AFD are created/promulgated by the Northern Virginia Fire Chiefs ("NOVA Chiefs") for use region-wide. The 6101 Edsall Road Incident Analysis and associated recommendations will be presented to the NOVA Chiefs with a request to review the regional high-rise operations manual. This recommendation is related to the staffing issues in recommendations #17-#21.</p>		<p>July-08</p>
11	<p>Increase staffing in the Communications Center to one supervisor and three dispatchers. (This would allow the supervisor to perform supervisory functions and oversee the operations of the Communications Center instead of being occupied with basic tasks.)</p>	<p>This recommendation will be assessed as part of the emergency communications study being conducted by Kimball and Associates.</p>	<p>\$ 205,016</p>	<p>May-08</p>
12	<p>Upgrade the Alexandria CAD system to correct operational limitations</p>	<p>The latest "upgrade" to the Fire CAD system did not correct the operational limitations of the existing platform. An assessment of the CAD system is part of the comprehensive emergency communications study initiated by the City Manager's Office.</p>		<p>May-08</p>

Alexandria Fire Department Report on Consultant Recommendations from the August 25, 2007, Fire at 6101 Edsall Road
Attachment 1--March 25, 2008

RECOMMENDATIONS	Status	Estimated Cost	Estimated Completion Date
13 Provide a CAD interface among the Alexandria, Fairfax and Arlington Communications Centers	A sub-regional CAD interface has received funding as part of the federal Urban Area Security Initiative (UASI) program for the National Capital Region (NCR). Specifications for the CAD interface are under development by the regional information technology group.		2011
14 Consolidate the Alexandria, Fairfax and Arlington Communications Centers (as an alternative to the three preceding recommendations)	Since Arlington County recently opened its new, state-of-the-art emergency communications center and Fairfax County will be opening a similar center in the near future, such a consolidation is neither practical nor feasible at present. The City will co-locate its Police/Fire Communications Center in 2011. We will pursue recommendations #11-#13 instead of this one.		N/A
15 Establish a regional mutual aid coordination center to manage large scale redeployments and ensure that coverage is maintained for all areas	The MWCOC Fire Chiefs Subcommittee is evaluating several options for establishing a regional operations coordinating center (ROCC).		N/A
16 Provide direct MDT access to pre-fire plans, diagrams and aerial photos of target hazards	The current Fire CAD system provides only limited capability to deliver pre-fire plans, diagrams, and aerial photos of target hazards. The AFD is enhancing its efforts to gather baseline data and link with other City systems pending assessment of the CAD system as part of the emergency communications study.		By the end of calendar year '08
* 17 Increase the staffing of all engine and ladder companies to a minimum of four personnel on duty at all times. This change would significantly increase the operational capabilities of each Alexandria company and provide compatibility with the Fairfax County and Arlington Fire Departments.	This recommendation has a major fiscal impact. Both Arlington and Fairfax Counties used a phase-in approach to achieve this minimum staffing level. AFD staff is developing a multi-year phased proposal for consideration by the City Manager. Currently three on-duty personnel is our minimum staffing level. Four on-duty personnel at all times would be achieved over a period of years, likely starting in FY2010.	\$ 3,003,235	To be determined based on funding availability
* 18 Operate a fully staffed rescue company instead of cross staffing the heavy rescue unit with an engine company crew	Currently there is not full staffing for the AFD heavy rescue company. This will be included as part of the AFD's phased proposal to increase minimum staffing on fire suppression units.	\$ 1,197,581	to be determined
* 19 Assign an aide for each Battalion Chief	The provision of an additional battalion chief's aide will be included as part of the AFD's phased proposal to increase minimum staffing on fire suppression units.	\$ 363,349	to be determined

* Completion of these items is dependent on future funding decisions and completion dates cannot be determined at this time.

Alexandria Fire Department Report on Consultant Recommendations from the August 25, 2007, Fire at 6101 Edsall Road

Attachment 1--March 25, 2008

RECOMMENDATIONS	Status	Estimated Cost	Estimated Completion Date
* 20 Assign a full-time driver/operator to the lighting and air unit	The provision of a full-time driver/operator for the light/air unit and other utility vehicles will be included as part of the AFD's phased proposal to increase minimum staffing on fire suppression units.	\$ 250,270	to be determined
* 21 Assign an on-duty Safety Officer	Three on-duty shift safety officers (3 FTEs) are proposed in the FY2009 City Manager's Alternative Proposed budget.	\$ 342,489	Depends on Council FY 2009 budget action

* Completion of these items is dependent on future funding decisions and completion dates cannot be determined at this time.

8

Attach. 2

Prepared November 28, 2007



**ALEXANDRIA FIRE DEPARTMENT
INCIDENT ANALYSIS**

**3 ALARM FIRE
WITH 4 CIVILIAN INJURIES
AND 6 FIREFIGHTER INJURIES**

**ALEXANDRIA KNOLLS WEST
6101 EDSALL ROAD
ALEXANDRIA, VA**

AUGUST 25, 2007

**ANALYSIS PREPARED BY
J. GORDON ROUTLEY, MIFIREE**

INTRODUCTION

On the evening of August 25, 2007, the Alexandria Fire Department responded to a series of incidents that resulted from the passage of a strong thunderstorm through the Northern Virginia area. The storm was directly responsible for two multiple alarm fires, both caused by lightning strikes, and approximately 21 other incidents that occurred within a period of two hours.

The most serious incident was a 3-alarm fire in a high rise condominium building at 6101 Edsall Road, in the western part of Alexandria. Another 2-alarm fire occurred in a hotel on Bluestone Road, approximately 2.5 miles east of the first fire. The Edsall Road incident required the evacuation of approximately 300 residents and resulted in four civilian injuries and six firefighter injuries. Three of the firefighter injuries were serious enough to require the members to be admitted to hospital and one of the firefighters was treated in intensive care for four days.

The occurrence of a serious firefighter injury is one of the primary reasons that the incident analysis was conducted. The Alexandria Fire Department wants to ensure that this incident becomes a positive learning experience, particularly to enhance firefighter safety in the future. Virginia Occupational Safety and Health (VOSHA) is conducting a separate investigation of the firefighter injuries for regulatory enforcement purposes and will issue a separate report.

The incident analysis closely examines the Department's command, control, standard operating procedures, resources and overall performance in relation to the events that occurred on the evening of August 25. All of the observations and recommendations contained within this report are intended to be constructive - not to find fault or to criticize the actions of the firefighters who were involved in the incident. Their performance should be commended and their ability to deal with an unusual set of circumstances should be recognized. Several occupants of the building were rescued and the situation was effectively controlled as a result of their exceptional efforts. The incident could have caused much more severe injuries, or even fatalities, if the firefighters had not performed so effectively.

This report is intended to identify the lessons that should be taken from this experience and applied to the Alexandria Fire Department's overall preparedness for challenging situations that can be anticipated within its operational environment. The specific circumstances of August 25 may be viewed as exceptional; however the occurrence of a thunderstorm at the end of a hot, humid summer day, followed by a period of very high emergency activity, is not unusual. Thunderstorms typically generate numerous emergency incidents that stretch fire department resources for a period of time. The experience was a true test of the Department's capabilities and resiliency.

The Alexandria Fire Department contracted with J Gordon Routley, a consultant who specializes in fire department operations and firefighter health and safety, to conduct this analysis. The process was facilitated by Captain Byron Andrews III, Aide to the Fire Chief and included extensive interviews with emergency responders who were involved in the incident; reviews of radio and telephone recordings, incident reports, standard operating procedures and related documents; examination of the building plans and a visit to the incident scene.

BUILDING DESCRIPTION

The incident occurred at Alexandria Knolls West, an 18 story condominium building located at 6101 Edsall Road, in the west end of Alexandria. The occupancy of the building is a significant factor. The building has approximately 300 occupants, many of whom are elderly and/or handicapped and would be unable to evacuate without assistance. Any incident that requires evacuation of the residents is likely to be very labor-intensive, demanding the assignment of several companies to assist the occupants and maintain control of the exit stairways. In many situations sheltering in place would be more desirable than attempting to evacuate all of the occupants down two stairways.

Construction and Fire Protection

The building has a reinforced concrete structure and meets the building code definition of fire resistive construction. It is equipped with a fire alarm system and two standpipes are provided for fire department use, one at either end of the building, supplied by a fixed fire pump and exterior fire department connections. Two fire hydrants are located along the private entrance roadway. An emergency generator provides power for emergency lighting in the corridors and stairways.

There are no automatic sprinklers in the apartments or service areas. If a similar building were constructed today, automatic sprinklers would be required. It should be noted that automatic sprinklers would have had little or no impact on the incident that occurred on August 25, 2007, because there was very little active fire in the building and most of that fire was in concealed spaces. The most critical problems were caused by the smoke that was released by smoldering insulation and arcing electrical equipment.

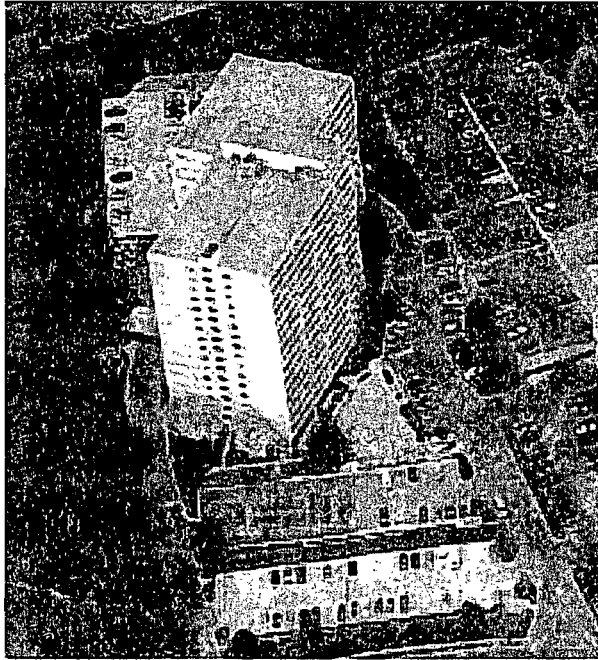
Site Arrangement

The building is constructed on a slope and set back from Edsall Road in a manner that makes it difficult to view from the street. Access to the building is provided by a loop driveway that connects with the public street in two locations. The roadway provides the legally required access for fire apparatus, although the width, slope and curvature present challenges for maneuvering and positioning large apparatus.

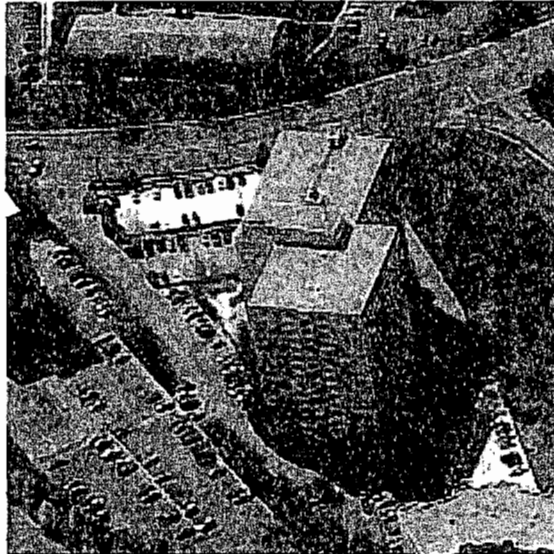
The private access roadways allow for aerial apparatus to be positioned along the two faces of the building. Only the lower floors can be reached with aerial apparatus and the setbacks and slope of the roadways further limit the areas that can be accessed from the exterior. An aerial apparatus that is positioned for use effectively blocks the roadway, preventing access by any other vehicles.



Aerial View – 6101 Edsall Road



Aerial View – South Side



Aerial View – North Side

Interior Configuration and Stairways

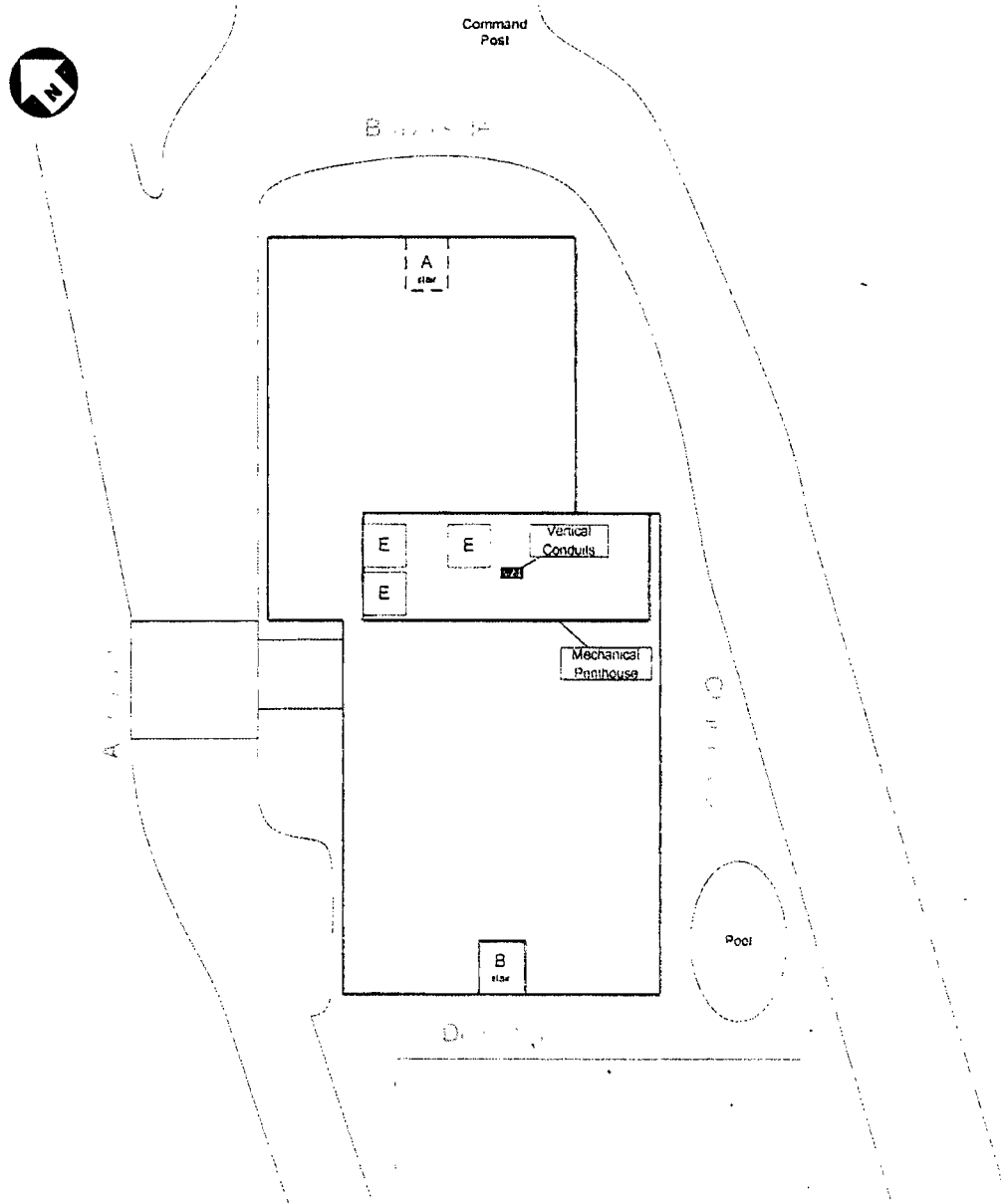
The building is constructed with a single corridor running north-south on each floor and three elevators at the center. The corridor is offset at the elevator lobby. (Refer to site plan on following page.)

An enclosed stairway is located at each end of the building; the A-stairway at the north (Bravo) end and the B-stairway at the south (Delta) end. The A-stairway runs from the 2nd floor to the 18th floor with a hatch to provide roof access, while the B-stairway runs from the ground floor to the roof level. A standpipe riser is located in each stairway.

A vertical row of windows indicates the presence of a stairway at each end of the building. From the exterior, it is very difficult to locate the stairway doors or to differentiate between the A- and B-stairways without a floor plan.

- The door that leads to the A-stairway can only be accessed by descending a set of exterior stairs from the parking lot on the Bravo side of the building.
- The door at the bottom of the B-Stairway discharges to a narrow walkway on the Delta side, between the building and the tennis courts. The walkway connects to a flight of exterior stairs on the Alpha side of the building and to the swimming pool area on the Charlie side.

- Only the B-stairway is accessible from the main lobby, via an interior corridor. The A-stairway ends one floor above the lobby and discharges directly to the exterior.



Site and building plan, indicating elevators, stairways and corridors, and exterior access. Location of vertical conduits indicated in red.

Observations:

There are numerous apartment and condominium buildings in Alexandria, particularly in the western part of the city and in the adjacent areas of Fairfax and Arlington Counties. Many of these buildings share most of the same characteristics. A very similar situation could have occurred in any one of these buildings and would have presented very similar challenges.

Fire Description

The fire was caused by a lightning strike on the top of the mechanical penthouse at the center of the building. The lightning bolt caused extensive damage to switchgear and power circuits in the penthouse, where the elevator motors and air conditioning equipment were located. The surge of electrical energy traveled down through the building along three vertical steel conduits that delivered 208 volt power from the electrical service entry on the ground level to the penthouse. The lightning bolt caused severe damage to the conduits and the conductors inside them and additional damage to equipment in the main electrical room on the ground floor.

The fires that were ignited by the lightning bolt involved the switchgear panels in the penthouse and the insulation on electrical conductors within the conduits at several locations. The fire also involved combustible insulation materials within void spaces on the 17th and 18th floors and on the 8th floor. The damaged electrical equipment continued to arc and release smoke until the power supply was interrupted.

The three conduits ran vertically within a void space in the wall of the public corridor, next to an elevator shaft. One side of this void space could be opened-up from the public corridor on each floor, while entry had to be made through the kitchens of the adjacent apartments to reach the back side of the void space. On the 8th floor, a metal panel in the public corridor provided access to a large junction box that connected the upper and lower sections of the conduits. The fire involved wiring inside the box and extended to the void space around it.

The fires themselves were relatively minor and easily extinguished once the power was turned off. The major problem was the smoke that was produced by the fires and by the electrical arcing. The fires did not extend to the building structure or contents, although significant quantities of smoke were produced at each location and spread throughout the building.

The volume of fire at each location was limited by the enclosure of the conduits in fire resistant materials. The firefighters had to locate and gain access to each point where there was active fire, before it could be fully extinguished and the

walls around the conduits had to be opened to check for fire extension. A team of 3 or 4 firefighters was able to manage each fire, once it was located.

Observations:

The fires were primarily in concealed spaced and produced more smoke than flame. If the fires that were ignited on the occupied floors had extended to the interiors of the apartments, the situation would have become much more critical. A working fire involving one apartment in a highrise building is a major operational challenge for firefighters. The possibility of two or three simultaneous apartment fires on different levels would be much more problematic.

INCIDENT CHRONOLOGY

The high temperature recorded at Reagan National Airport on Saturday, August 25, 2007 was 94 degrees with high humidity. During the later part of the afternoon, Alexandria Fire Department units were committed to an incident on King Street that required electrical power to be shut down to several businesses in the downtown area. The King Street incident occupied a full first alarm assignment for more than two hours, working outside in the heat and humidity. The last units were still on the scene of that incident when a severe thunderstorm passed through the Northern Virginia area in the early evening

The storm brought strong winds and numerous lightning strikes, although there was relatively little rainfall. As typically occurs during a thunderstorm, a flurry of emergency incidents was triggered, including power failures, stuck elevators, transformer fires, alarm system activations, traffic accidents and lightning strikes. Activity in the Alexandria Fire Communications Center increased dramatically and most of the department's units were dispatched to at least one incident during the first 20 minutes. The storm had a similar impact on the Fairfax and Arlington Fire Departments as it passed through the area.

The initial report of an incident at 6101 Edsall Road came from a call to Alexandria 9-1-1 at 19:42 hours. The first caller reported that the building had been struck by lightning and there was a fire in the elevator shaft. Several additional calls were received in rapid succession reporting smoke in the lobby and on different floors of the building.

Alexandria Fire Communications dispatched a high rise box alarm assignment to the report of a fire in the building. The first alarm assignment was not dispatched via the CAD system until 19:49 hours. The radio dispatch announcement was broadcast at 19:52 hours and the information indicating smoke in the lobby and a report of fire in the elevator shaft was transmitted to the units en route.

The crews at Station 208 were already en route when the alarm was dispatched. They had been monitoring activity on the tactical radio channels and heard the dispatcher call Battalion 212 to advise they were preparing to transmit a box for 6101 Edsall Road. Engine 208 and Truck 208 immediately responded and had been en route for at least two minutes before the alarm was transmitted to their vehicle MDTs. Both units were turning from South Van Dorn Street onto Edsall Road when the dispatch assignment was announced over the radio.

First Alarm dispatched at 19:49:02

E208 E426 E206 E405* T208 T405* R426 M208 B212 B111 A215

Notes: E405 and T405 were unavailable and did not respond

B212 responded, but was not listed on the CAD assignment

B404 was listed on the assignment, but was not dispatched initially

T408 and B404 were added to the assignment at 19:54:17

Initial Operations

The first arriving unit, Truck 208, arrived on the Alpha-side of the building at 19:52 hours, where they encountered residents exiting from the building. Truck 208 reported that occupants informed them of fire in Apartment 602 and possibly on the roof. Battalion Chief 212, still en route, immediately advised Communications to start lining-up a second alarm and that he would advise if it was needed.

Engine 208 arrived on the Alpha-side a few seconds after Truck 208, assumed command, and reported that there was smoke in the lobby and the trash room, indicating the possibility of a trash chute fire. Battalion Chief 212 arrived via the Charlie-side of the building a moment later and assumed command. The Command Post was established at the B212 vehicle in the parking area on the Bravo-side.

Engine 426 and Rescue 426 arrived at approximately the same time and also entered via the Charlie-side to the Bravo-side of the building. Both companies began to perform their pre-assigned functions; E426 establishing a water supply and R426 establishing a rapid intervention team. The crew of E426 then proceeded to the second floor to check the trash chute.

Rescue 426 reported to Command that a resident was reporting a fire in wiring in the corridor on the 8th floor. Command directed R426 and E426 to proceed to the 8th floor to deal with that situation, stating that the second due truck would be given the RIT assignment.

Engine 206 was the next unit to arrive and advised Command that they would be assuming their pre-assigned function of Lobby Control. The Incident Commander reassigned E206 to go to the roof level to check on a report of fire at that location.

The initial check by E208 and T208 determined that the fire was not in the trash compactor or the trash chute. Engine 208 reported that the situation appeared to be an electrical fire, with smoke spreading throughout the building. The Building Engineer was in the lobby and directed E208 to the electrical room on the ground floor to shut-down the main power supply to the building.

Observations:

At this point the Incident Commander was not aware that the initial assignment was missing one engine company and that the second due truck and second due Battalion Chief would be delayed. The dispatch information had not been sent to the MDT in the B212 vehicle and the Incident Commander did not have a list of the units that were assigned to the incident. He assumed that the additional units would be arriving

momentarily. Battalion 212 asked Communications for the identity of the 4th due engine company, but did not receive a response.

Although E405 and T405 were listed on the first alarm assignment, both units were on the scene of another incident in Fairfax County when the alarm for Edsall Road was dispatched. Tower 408 was added to the assignment as a replacement for T405; however it did not arrive on the scene until 15 to 20 minutes after the first companies began operating. Battalion 111 from Arlington arrived at approximately the same time. The 4th due engine assignment was not covered.

Tower 405 completed their assignment in Fairfax County and anticipated that they would be called to Edsall Road; based on the radio traffic they were monitoring. They stood-by at a location about a mile from the incident until they were eventually dispatched on the Level-2 RIT assignment, 30 minutes after the first units arrived. Engine 405 was dispatched on the 3rd alarm.

Stairway Operations

Engine 206 began to climb the A-stairway, while E426 and R426 started up the B-stairway. The crews reported light smoke in both stairways and heavier smoke in the corridors on each floor that they checked on the way up. The Incident Commander directed T208 to select one of the stairways to set-up for smoke removal, while E208 returned to the lobby to check the elevators for occupants and for indications of fire in the elevator shafts.

Rescue 426 then reported that they had encountered building occupants in the B-stairway who advised them of an elderly person in Apartment 1805. The occupants reported that there was smoke on the 18th floor and the person was unable to exit without assistance. The Incident Commander redirected R426 to go to the 18th floor to check on that situation and to open the top of the stair shaft.

With all of the units on the scene committed and reports of smoke and possible fire on multiple floor levels, the Incident Commander requested a second alarm and a Level-2 RIT assignment. Both requests were made at the same time.

Fire Attack

When they arrived on the 8th floor, E426 discovered fire in and around the large junction box in the corridor. They reported that they were connecting a hose line to the standpipe in the B-stairway to attack the fire. The Incident Commander assigned Engine 426 as the 8th Floor Division and advised that he was also assigning E208 and T405 to the 8th floor to assist. (At that time he believed that

T405 had been dispatched on the initial assignment and was not aware that T408 was en route as a replacement.)

Rescue 426 discovered fire in the wall on the 18th floor, outside apartment 1803. They also encountered two elderly occupants in their apartments and determined that sheltering in place was a better option than having them walk down 18 flights of stairs. They opened windows in the apartments to provide ventilation for the occupants, then obtained a standpipe pack from E206 and connected a second hose line to the standpipe in the B-stairway to attack the fire.

When E206 made access to the roof, after opening the hatch at the top of the A-stair shaft, they discovered heavy smoke in the elevator penthouse. They requested an additional company to bring a line up to the roof via the A-stairway.

The driver of T208 was already on the roof, having walked up the B-stairway to open the door at the top – he joined-up with E206 on the roof. The Incident Commander attempted to assign the other members of T208 to assist E206 on the roof; however they did not hear the assignment.

The reports from floors 8, 18 and the roof were all received with a space of approximately two minutes. At almost the same time, Alexandria Communications advised the Incident Commander of a medical emergency in Apartment 507. Engine 208 heard this report and advised the Incident Commander that they were in the stairway near the 5th floor and could check on the situation at 507.

Situation Status

At this point there were reports of smoke in both stairways and on all 18 floors, with active fire on three different levels, plus a medical emergency and an unknown number of occupants still inside the building. The elevators were out of service; all five companies on the scene were committed; there was no RIT in place and Lobby Control had not been established. The second alarm companies were still en route, as well as the second due truck from the first alarm.

Fire Suppression

The incident involved fires in three separate locations at essentially the same time. Each fire was relatively minor and was controlled by the actions of a single company:

- Engine 426 attacked the fire in the junction box on the 8th floor and opened the wall to reach the fire in the void space. They also opened the wall in the kitchen of the adjacent apartment to attack the fire in the void space

from the back side. When T408 arrived, they were assigned to assist E426 with overhaul in this area and B111 was assigned as 8th Floor Division

- Rescue 426 opened the wall in the 18th floor corridor to expose the conduits and attack the fire in the void space. They also opened the wall inside the adjacent apartment to expose the back side of the void space.
- Engine 206 used their thermal image camera to look for the fire in the penthouse. They determined that the smoke was coming from the switchgear and other damaged electrical equipment. The smoke production stopped when the equipment was de-energized and no extinguishment actions were required at the roof level.

While the fire suppression actions were occurring, E208 assessed the patient on the 5th floor who was in respiratory distress and requested an ALS unit at their location. They also reported that the best way to remove the patient would be to position a tower ladder on the Charlie side of the building and use the bucket to lower the patient from the apartment balcony to the ground. The exterior option would involve fewer potential problems than attempting to carry a patient in respiratory distress down from the 5th floor and risk additional exposure to the smoke.

A paramedic from M208 was assigned to don an SCBA and went to the 5th floor to provide ALS treatment. Tower 405, which had been assigned on the Level-2 RIT dispatch, was reassigned to remove the patient.

Observation:

Alexandria EMS personnel are civilian employees who are not expected to fight fires or to operate in IDLH atmospheres. Fairfax M426 was on the scene standing-by at this time. The Fairfax medic units are staffed by fully qualified firefighters, who could have been assigned to operate inside the building.

Second Alarm

The second alarm was dispatched at 20:05 hours.

Second Alarm dispatched at 20:05:41

E107 E408 E109 R206* M426 B404 L/A207 EMS232

Note: R206 was unable to respond; dual-staffed by E206 (already on scene)

L/A207 was delivered to the scene by M207 - no qualified operator available

The Level-2 RIT assignment, which was requested at the same time as the 2nd alarm, was not dispatched until 20:22 hours.

Level 2 - RIT dispatched at 20:22:52
E422 T405 R109 B211
EMS231 M202 added at 20:25:53

The first alarm companies had been operating for approximately 30 minutes before the second alarm companies arrived. The second alarm assignment provided only three fire suppression companies, instead of four as required by the standard operating procedure. The assigned special service company, Rescue 206, failed to respond because it is cross-staffed by Engine 206, which had been dispatched on the first alarm.

Engine 107 was initially assigned to establish Staging and then reassigned to establish Lobby Control. The driver of E107 remained on Edsall Road as the Staging Officer. After arriving in the lobby, the company officer determined that there was very little that could be accomplished by Lobby Control and that Rehab for the crews that were coming downstairs was a higher priority. Engine 107 took on the added responsibility of managing Rehab, which was located outside the main entrance on the Alpha side of the building.

Battalion Chief 404 was assigned to establish Division 18. Arriving on the 18th floor, he found the corridor filled with smoke; although the crew of R426 already had the fire under control. Rescue 426 was opening the walls and ceilings to check for fire extension in the void spaces.

Two crew members from R426 were sent down to the 17th floor to check for fire around the conduits. They opened the wall and discovered charring in the void space, but no active fire.

One of the crew members from R426 was experiencing chest pains and severe weakness. Battalion Chief 404 directed the crew of R426 to assist this member downstairs to Rehab for medical evaluation, leaving the Battalion Chief alone on the 18th floor.

After determining that the situation in the penthouse was under control, E206 redeployed to the 18th floor and reported to Division 18. Engines 109 and 408 had both been assigned to report to Division 18 to relieve companies from the initial response and arrived a few minutes later.

Engine 109 worked with E206 to overhaul the void spaces around the conduits on the 18th floor. When they had ensured that there was no residual fire on this level, both companies began to work their way down from floor to floor, checking for fire in the concealed spaces around the conduits on each level. Alternating floors down to the 9th were checked by E206 and E109, while E408 remained on the 18th floor.

After checking the 9th floor, E206 requested reassignment to Rehab. As they started downstairs, they encountered a building resident who was in distress in the A-stairway and unable to walk. They carried the patient downstairs and turned him over to EMS personnel at ground level. Upon reaching the exit, all three crew members from E206 were exhausted and unable to walk. They were evaluated by EMS personnel and transported to Alexandria Hospital, where two of them were admitted in serious condition.

At that point the Incident Commander recognized that all of the crews that had responded on the first alarm had been operating for more than an hour under extremely physically demanding conditions. All of the personnel were exhausted and several were in need of urgent medical assistance. Extensive efforts would be needed to complete the required operations in the building and manage the displaced occupants. A third alarm was requested at that time to provide fresh personnel.

Observation:

The fire problem was under control by the time the third alarm was requested. All of the firefighters from the first alarm were exhausted and/or incapacitated and there were no fresh crews available to complete the remaining tasks.

Third Alarm

Third Alarm dispatched at 20:59:28

E405 E203 E207 T422 M206

Note: There was no Battalion Chief available to respond on the 3rd alarm.

When the third alarm companies arrived, they were assigned to relieve the remaining first alarm companies and to complete overhaul, ventilation, salvage and occupant support functions. The first alarm companies were evaluated in Rehab and then released from the scene.

The determination was made that power could not be restored until the damaged electrical equipment was isolated. The remaining occupants were assisted in leaving the building and assistance was provided to find temporary accommodations for all of the residents.

The scene was turned-over to the Fire Marshals for investigation.

ANALYSIS

Firefighter Injuries

The occurrence of six firefighter injuries, including two that are considered serious, is the most compelling reason to conduct a detailed analysis of this incident. Six firefighters were transported to Alexandria Hospital, where three were admitted and three were released after assessment in the Emergency Department. One of the firefighters spent several days in intensive care and had not returned to regular duty when this report was prepared.

Five of the injured firefighters were assigned to Alexandria companies and one was assigned to a Fairfax company. All of them were on the initial response and participated in the stair climb; five of them climbed to the roof or to the 18th floor. The injuries were all related to extreme exertion combined with exposure to smoke and included chest pains, difficulty breathing and heat exhaustion. The most serious injury was directly related to inhalation of the products of combustion.

The companies that were assigned to the upper levels of the building had to walk up the stairs, wearing their protective clothing and SCBA and carrying all of their tools and equipment. Each individual was carrying at least 100 pounds of extra weight and some had between 150 and 200 pounds of protective clothing and equipment. Walking up to the 8th floor with that extra weight is a significant test of strength and physical fitness, particularly while wearing protective clothing on a hot, humid evening.

Walking up 18 floors, as quickly as possible, with the extra weight is an extreme challenge. Most of the firefighters who made the climb to the 18th floor and the roof were close to exhaustion when they reached their destinations. They had to rest for a few minutes before they could begin to operate

The firefighters were also exposed to smoke while climbing the stairs. All of the crews that climbed the stairs reported making a very similar assessment of the situation when they began their climb. Although there was hazy smoke in the stairways, they decided not to use the air from their SCBAs on the way up, unless it became essential, because they wanted to save the air for conditions they might encounter when they reached the fire floors and in case they needed the air to exit. They did not believe that the smoke in the stairways was particularly dangerous or incapacitating.

Each company made the determination to not use air on the way upstairs independently and presumably by consensus. The applicable standard operating procedures and guidelines do not provide explicit criteria for determining when air must be used in this type of situation. Firefighters and company officers are expected to make discretionary decisions based on their assessment of the risk

factors in each situation. As a general guideline, they are expected to place safety ahead of expediency, although the balance point is very difficult to define.

If the crews had used their SCBAs while climbing the stairs, they would have consumed most of their air by the time they reached their destinations. They were all concerned about saving their air to be able to operate when they reached the fire floors and having an adequate reserve in case they might need it to exit. All of the crews also decided not to take additional SCBA cylinders with them, because they were already carrying as much weight as they could manage.

All of the crews also reported that they only used their air supplies sporadically when they reached the areas where they could not operate safely without it. They would use their air for a few minutes before retreating to a location where there was fresh air. They used their masks on and off to allow them to work as long as possible with a limited amount of air. The combined effects of heavy exertion, heat, humidity and prolonged exposure to light smoke made the firefighters highly susceptible to respiratory distress and exhaustion.

The decision making processes that allowed the firefighters to be exposed to the combination of respiratory hazards, heat stress and physical exhaustion were discussed with each crew. The firefighters and the company officers were all aware of the inherent risks that were involved in their actions. They were able to discuss IDLH conditions, their potential exposure to carbon monoxide, cyanide and other toxic gases, and the combined effects of heavy exertion and heat stress. The common rationale was that "they did what they had to do because it was necessary under the circumstances," not because they were ordered to take inappropriate risks. The crews also noted that, in retrospect, they could have worked more cautiously and deliberately, taking more time to plan their actions and pace the climb – particularly if they had had known that their back-up companies would be delayed.

Delayed Reinforcements and Support Systems

The initial attack companies expected that additional resources would be arriving within minutes and that "the system" would be getting organized behind them, according to standard operating procedures. They were not aware that the initial response was lacking companies and that the second alarm companies would be delayed. Their common reaction was to keep on working until they were so exhausted that they could not continue.

Under normal circumstances, the first wave of firefighters would be expected to reach the fire floor as quickly as possible to initiate operations. A second wave of companies should be close behind, bringing fresh personnel, additional SCBA cylinders and other equipment. In a "model operation" the second wave of

companies should reach the fire floor in time to relieve the initial attack companies, before their air supplies are expended. By that time a logistical supply chain should be established to provide replacement air cylinders, two floors below the fire.

The model system did not perform as expected at this incident for several reasons:

1. There were no back-up companies on the scene and the reinforcements did not arrive fast enough to meet the replacement cycle objective.
 - The initial assignment was missing one company and a second company was delayed.
 - The response of additional companies was delayed and the second alarm assignment was missing one company.
2. The lack of elevators required the firefighters to climb an unusual height and expend an unusual amount of energy before they reached the floors where they would operate.
3. The firefighters were exposed to smoke in the stairways while climbing.
4. The elevators were not available to transport additional firefighters, equipment and air cylinders and there were no companies available to establish a stairway supply chain.
5. The incident management structure was not sufficiently robust to recognize the problems that were occurring and make appropriate adjustments.

The situation was further complicated by the reports of fire on the 8th floor and at the top of the building. The standard operating procedures for highrise fire fighting are written with the presumption that the fire will occur on one floor. Multiple fires require adaptation and adjustments from the basic highrise plan, which would require even more resources.

The analysis of factors that contributed to the firefighter injuries also underlines the need to quickly establish an adequate command structure and to ensure that command officers are in position to coordinate operations and to monitor the condition of the crews. The practice of assigning company officers to positions within the command structure is ineffective when companies are operating with minimum staffing and the company officers are performing manual labor.

Emergency Medical Operations

While fire suppression and rescue operations were being conducted inside the building, a simultaneous operation was occurring to provide assistance and medical care for the occupants who were exiting from the building. Medic 208, assigned on the first alarm, initially took a position on the Alpha side of the building near the main entrance. The medic unit was assigned to stand-by with the rapid intervention team; however the assigned rapid intervention company was diverted to a different function. Medic 208 encountered several building occupants who had been exposed to smoke while evacuating and began to assist them. This occurred out of sight of the Command Post and the Incident Commander was not aware of the number of building occupants who were being assisted.

When EMS232 arrived, she found the crew of M208 treating the building occupants. EMS232 established "EMS Command" and requested an additional radio talk group for this function. Two DASH buses were requested to provide shelter for the occupants who were gathered outside the main entrance.

The level of EMS activity escalated rapidly when the firefighters from the first arriving companies returned to ground level seeking rehab. At this point one of the two paramedics from M208 had been assigned to go inside the building to assist E208 with the patient who was in respiratory distress, leaving only one paramedic to establish Rehab.

Rescue 426 had advised Medic 426 that they were coming down from the 18th floor with the firefighter who was experiencing chest pains. Medic 426 was waiting for the firefighter when they reached the ground and he was transported to Alexandria Hospital.

As additional firefighters arrived at ground level in need of medical attention and rehab, along with several additional civilian patients, EMS232 requested five additional medic units. EMS232 attempted to coordinate triage, treatment and transportation, which required several trips on foot from the command post, to the rehab area on side-Alpha, to the lobby, to the staging area and back to the command post.

The Rehab area was established in the same area where the building residents had gathered outside the main entrance. The location was not consciously selected and resources were not specifically assigned to establish Rehab. The function evolved spontaneously as exhausted firefighters arrived and encountered the EMS personnel, who were already taking care of building occupants. The Captain of E107, who had been assigned to Lobby Control, recognized the need for Rehab and took on the additional responsibility, coordinating efforts with EMS 232.

Observations:

- Rehab should not be assigned to a Medic unit that is already standing by a part of an assigned RIT capability. Additional resources should be provided for Rehab.
- The NOVA Rehab Manual is under review prior to adoption. This document should be adopted and training should be provided as quickly as possible.
- Ideally, Rehab should be established in a designated location that provides sufficient space and provides easy access for transport units. The selected location should not be exposed to residual smoke or other hazards. Sufficient resources should be assigned to Rehab to manage the number of firefighters that are expected,
- Separate EMS resources should be assigned to assist the building occupants. The occupants should be in a different location from Rehab.
- An EMS supervisor should be assigned on box alarm assignments, or at least on every working incident, to coordinate medic unit operations and establish a more robust incident management structure.
- The medical components of this incident could have been managed more effectively and much more efficiently by establishing an EMS Branch. The individual assigned to coordinate EMS operations should have remained at the Command Post and assigned designated officers to supervise various functions at different locations. This also would have been an appropriate incident to activate a multi-patient EMS plan, making use of an EMS strike team or task force the Multi-Patient Support Vehicle to provide the necessary resources.
- The Alexandria EMS supervisors are not sufficiently trained and experienced to operate comfortably within the incident command system. The EMS supervisors should be fully trained and incorporated into the incident command structure.
- EMS supervisors and other EMS personnel should be familiar with and trained in performing all functions that may be assigned to them at an incident. One of the EMS supervisors, who was dispatched as part of the Level 2-RIT at this incident, was not familiar with the SOP for Rapid Intervention Teams.
- Alexandria EMS personnel are not expected to fight fires or to operate in IDLH atmospheres. Their initial training includes SCBA qualification and

the medic units carry SCBA and protective clothing; however the EMS employees are not required to maintain SCBA proficiency or to meet annual fit test and operational evaluation requirements. The assignment of a solo medic from M208 to enter the building using SCBA exposed the individual to an inappropriate level of risk. (Fairfax M426 could have been assigned to perform this mission.)

Resource Availability

The shortage of resources was a critical factor at this incident. The Incident Commander did not have the quantity of resources on scene to conduct operations on the scale that was required for this incident. The shortfall in resources resulted primarily from system overload – an exceptional number of simultaneous incidents created an extreme demand for resources, which resulted in extended response times as well as incomplete assignments.

The nature of the situation compounded the resource problem. All of the first alarm companies were committed to operations that involved exceptional physical efforts, while reinforcements were delayed responding. The circumstances caused the Incident Commander to divert units from their normal assignments, including the RIT and Lobby Control, and there was a long delay before additional companies became available to replace them.

The NOVA Standard Operating Procedures for fires in highrise buildings are based on the immediate response of seven fire suppression companies (4 engines, 2 trucks, one rescue squad). At this incident the second due truck was delayed by at least 10 to 15 minutes and the 4th due engine was never dispatched. Operations were initiated with only five fire suppression companies on the scene.

There is a presumption that any significant working incident in a highrise building would call for an immediate second alarm, bringing at least four additional suppression companies and additional command and support resources to the scene. There was a delay of several minutes before the second alarm was dispatched and the response times for the additional units were longer than normal. Only three fire suppression companies responded on the second alarm.

The additional companies took too long to respond and there were never sufficient resources on the scene to conduct operations on the scale that was appropriate for the situation – the supply of resources never caught-up with the demand. The shortage of resources could have been disastrous if the situation had been slightly different, particularly if the fires on the 8th and 18th floors had extended beyond the void spaces.

The situation was effectively mitigated as a result of exceptional initiative and physical effort by the companies that were on the scene. The firefighters performed beyond expectations and worked under conditions that exceeded normal risk levels in order to "get the job done" in spite of the circumstantial factors. Their performance ensured that all of the building occupants were safely evacuated, with only minor injuries, but resulted in six firefighter injuries that should have been avoidable under "normal circumstances."

Incident Management

The shortage of resources was particularly critical in relation to the command organization. A highrise incident requires a larger and more complex management structure than most other types of incidents, due to the number of tasks that must be supervised and coordinated. An incident that involves fire on multiple floors of an occupied highrise building with the elevators out of service compounds the incident management problems.

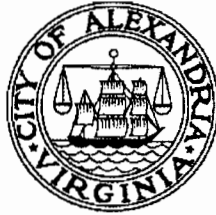
The fundamental principles of highrise operations require the command organization to be established ahead of or at least in parallel with the assignment of companies. This incident escalated very rapidly, from a smoke investigation to reports of fire on three floors, and required the commitment of all of the companies that were available. There were no command officers available at that time to build the management structure that would have been appropriate for this incident.

Only a single command officer was on the scene during the initial phase of the incident. Battalion Chief 212 arrived without an aide and without the limited amount of information that is normally available via MDT. Battalion Aide 215 arrived a few minutes after the Incident Commander and set-up the basic command post structure at the rear of the B212 vehicle. This type of command post is appropriate for a one-alarm structure fire, but it is far from adequate for a three-alarm highrise incident.

The Command Post for this incident would have been much more effective if it had been moved into a properly equipped Command Vehicle. An environment that provides multiple radios, telephones, work stations with computer terminals, proper lighting and other enhancements is much more functional than standing at the rear of an SUV in a crowded parking lot. The Alexandria Police Command Unit is available for this type of situation and both Fairfax and Arlington have fire department command vehicles available to respond on mutual aid.

A fire in an occupied highrise residential building involves particular command challenges relating to the building occupants. The occupants who self-evacuate must be managed, sheltered and provided with timely information. In many cases EMS resources must be assigned to provide triage, treatment and transportation

Alexandria Fire Department
Multi-Phase Plan to Implement Recommendations from the
Alexandria Knolls West Fire Incident Analysis



EXECUTIVE SUMMARY
March 19, 2009

On August 25, 2007, the Alexandria Fire Department (AFD) responded to numerous emergency incidents resulting from a line of strong thunderstorms passing through the region. From 7:40 p.m. until 11:40 p.m. that night, the AFD Communications Center processed 288 calls, including thirty-one 9-1-1 calls. The most serious event was a three-alarm fire in the Alexandria Knolls West condominiums, an 18-story, unsprinklered high-rise building with approximately 300 occupants, located at 6101 Edsall Road.

The fire was caused by a lightning strike on the mechanical penthouse at the center of the building, igniting fires on several floors. Fire suppression and EMS units from the AFD, Fairfax County Fire and Rescue Department (FCFRD), and Arlington County Fire Department (ACFD) were dispatched on the first alarm at 7:49 p.m.; a second alarm was dispatched at 8:05 p.m., bringing additional units from all three jurisdictions; and a third alarm was dispatched at 8:59 p.m. In addition to evacuating the building, fighting the fires, and searching for incapacitated residents, firefighters rescued several occupants during the course of the operation; including one removed from a 5th-floor balcony by an aerial ladder tower truck and another carried down a smoke-contaminated interior stairwell by a fire company.

Six firefighters were injured during the incident, five from the AFD and one from the FCFRD. Three of the AFD firefighters were admitted to INOVA Alexandria Hospital. One AFD firefighter spent several days in the intensive care unit (ICU) and could not return to normal duty for more than one month.

Given the complicated nature of the Fire-EMS operation and the severity of the firefighters' injuries, the City Manager's Office (CMO) retained an outside consultant to perform a comprehensive analysis of the fire at 6101 Edsall Road and the events leading to the outcomes experienced by the AFD. The Virginia Occupational Safety and Health (VOSH) agency also initiated an investigation of what they termed a "catastrophic" event, since more than three employees were hospitalized overnight. While the VOSH investigation concentrated on the specifics of the injured firefighters' experience(s) at the Alexandria Knolls West high-rise fire, the CMO-initiated incident analysis was

conducted with a broader scope, assessing all aspects of the AFD's response to the events of August 25, 2007.

The incident analysis of the August 25th fire at Alexandria Knolls West detailed a number of serious issues that negatively affect the ability of the Alexandria Fire Department to safely and effectively address emergencies in our community. Issues noted by the consultant include: a shortage of qualified/experienced personnel to adequately staff/operate the Fire Communications Center; the need for additional dispatcher training to handle 9-1-1 calls; preparation for EMS personnel to operate safely at fire incidents; the need for additional Fire-EMS incident management resources, training, and practice; a shortage of command officer support for major incidents; limitations of existing regional high-rise operating procedures; AFD computer-aided dispatch (CAD) system and mobile data browser (MDB) limitations; the need for enhanced regional mutual-aid coordination; the need for additional firefighters (from 3-person to 4-person minimum staffing) on engine and (aerial ladder) truck companies; the need for a fully-staffed heavy rescue company; the need for an additional battalion aide to provide support for each on-duty battalion chief; the need for a full-time light/air unit driver/operator to ensure 24/7/365 availability; the need for an AFD initial emergency incident command vehicle; and the need for three shift safety officers to provide round-the-clock, safety-focused oversight for employees involved in emergency incidents.

On February 20, 2008, VOSH cited the AFD with a "serious" violation related to the injured employees' use of respiratory protection equipment supplied by the AFD. The violation was technically corrected when the injured firefighters were removed from the fire building and no monetary penalty was imposed. However, during an "informal conference" with VOSH on February 27, 2008, Regional Director Paul B. Schilinski indicated the agency was looking for concerted action by the AFD to prevent such injuries in the future.

Issues described in the VOSH citation included: the inability of the AFD to ensure the proper use of self-contained breathing apparatus (SCBA) worn by firefighters performing interior structural firefighting tasks; the inability of the AFD to comply with regional high-rise firefighting procedures related to staging safety equipment within a building; and the inability to assure safe work-rest cycles (including rehabilitating firefighters subjected to the physical/mental strain of a high-rise firefight) for employees. VOSH suggested these negative outcomes were related to staffing issues also cited by the consultant who performed the CMO-initiated incident analysis.

CMO and AFD staff evaluated the consultant-prepared incident analysis to identify lessons learned and recommendations to improve the safety and effectiveness of the "all-hazards" fire and emergency services provided to City residents, business owners, and visitors. Actions already taken to address issues raised in the consultant's report include a comprehensive study, by Kimball and Associates¹, of Alexandria Police/Fire Department emergency communications capacity, organization, training, and technology; providing a

¹ Kimball and Associates. (2008). *Revised Final Report on Facility Planning, Operational Assessment and Consolidation Study: Alexandria, VA*. September 2008.

salary market rate adjustment to Police/Fire emergency communications personnel; scheduling additional training opportunities on the National Incident Management System-Incident Command System (NIMS-ICS) for City employees; revising standard operating procedures (SOPs) for supporting major incidents with additional Fire-EMS command officers and Office of Emergency Management (OEM) staff; participating in regional efforts to provide CAD interoperability between jurisdictions (e.g., Alexandria, Arlington County, and Fairfax County); and adding three Fire-EMS shift health and safety officers in the FY2009 Budget.

The consultant's analysis provided a number of additional recommendations requiring major funding increases for the Fire Department. As directed by the City Manager and City Council during the FY2009 budget development process, AFD staff has developed this 5-year, multi-phase plan to implement the report's recommendations. It is important to note that this plan solely addresses the recommendations set forth by consultant J. Gordon Routley in his November 28, 2007, report (the "Routley Report") to the CMO. AFD staff is conducting a broader strategic planning process to create additional plans for improving other mission-critical aspects of AFD's service to the community, using several other recently-completed consultants' reports^{2,3,4,5} as a starting point.

Ensuring the safety of our citizens, visitors, and employees is extremely important for maintaining the continued economic vitality, diversity, and unique character of the City. Our firefighters and paramedics often face dangerous situations when they respond to emergencies arising from all hazards. Our goal is to ensure that we have the equipment, personnel, training, and procedures needed to effectively meet these demands.

The matrix on the following page details our proposed multi-year plan for implementing all the recommendations contained in the Routley Report.

² Management Advisory Group, Inc. (2006). *Administrative Functions of the Fire Department and Best Practices Study: Alexandria, VA*. October 1, 2006.

³ System Planning Corporation—TriData Division. (2007). *Assessment of Fire Department Resource Locations, Staffing, and Facilities: Alexandria, VA*. October 2007.

⁴ Matrix Consulting Group, Inc. (2008). *Analysis of Fleet Services: Alexandria, VA*. December 2007

⁵ Kimball and Associates. (2008). *Revised Final Report on Facility Planning, Operational Assessment and Consolidation Study: Alexandria, VA*. September 2008.

Multi-Phase Plan to Implement Recommendations from the Alexandria Knolls West Fire Incident Analysis

RECOMMENDATIONS		STATUS		FY2009		FY2010		Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Ensure that qualified and experienced personnel are always on duty in the (Fire) Communications Center	The AFD Communications Center heavily relies on qualified Fire-EMS-Code personnel, detailed or working on overtime, to maintain the current minimum staffing level 24/7/365.	1) Completed a comprehensive study evaluating all aspects of the emergency communications function (Fire/Police) in the City; 2) provided a salary adjustment, based on a regional market rate analysis, for all emergency communications personnel to address retention of Fire/Police communications staff.											
Provide additional dispatcher training, particularly in dealing with building occupants who call 9-1-1 for assistance or instructions	Dispatcher training for Advanced Fire Service Dispatch and Emergency Medical Dispatch	The AFD Communications Coordinator attended a train-the-trainer for both the Emergency Medical Dispatching (EMD) and Emergency Fire Dispatching (EFD) courses. This investment will allow the Coordinator to conduct in-house training for emergency communications technicians (ECTs) and back-up personnel in both the Fire/Police Departments.						\$44,480					\$44,480
Provide additional incident management system training for EMS supervisors	COMPLETE	Conducted initial training with assistance from Montgomery County (MD) Fire and Rescue.											
Dispatch EMS supervisors to box alarm incidents	COMPLETE	Implemented on January 17, 2009.											
Ensure that EMS personnel are properly trained and prepared to operate in Immediately Dangerous to Life or Health (IDLH) environments	The current structure of the AFD EMS Division does not allow EMS personnel to operate in IDLH environments. Staff is exploring other options for delivering advanced life support (ALS) in that setting.												
Place additional emphasis on incident management training and simulations for complex and challenging incidents. (The organization must be prepared for situations that are more demanding than routine incidents and circumstances.)	The Office of Emergency Management (OEM) within AFD is enhancing its ability to provide training/practice in the National Incident Management System-Incident Command System (NIMS-ICS) to City employees. A federal grant-funded position is being assigned to provide additional training and the AFD is exploring options to further utilize NIMS-ICS for "routine" incidents to enhance familiarity during major events.	Submitted FFY2008 federal Assistance to Firefighters Grant (AFG) request for a Portable Incident Command Training System (PICTS) to support ongoing National Incident Management System-Incident Command System (NIMS-ICS) training for all City employees. \$20K match from existing AFD training funds.											

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RECOMMENDATIONS		Status	FY2009	FY2010	Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Improve procedures for activating and assigning staff personnel during major incidents and high demand situations. (The senior staff officers are on a rotating schedule to provide an on call duty officer for major incidents at night and on weekends. Several additional staff officers could be called-upon, if needed; however there are no established procedures for calling or assigning them.)	ONGOING	Existing practices for activating additional command-level officers for major incident response are being assessed and new standard operating procedures (SOPs) are in development. Other options for bolstering daily command officer staffing/support are also being evaluated.								
Dispatch Emergency Management to assist evacuees	ONGOING	Practices for dispatching the Office of Emergency Management (OEM) to assist with a number of major incident support functions are being evaluated and new SOPs will be prepared.								
Dispatch a command vehicle to major incidents	The AFD does not currently possess/operate a command vehicle (i.e., a specialized vehicle equipped with radios, computers, meeting space, etc.) to support operations at major emergency incidents. Interim options for providing command vehicle support are being evaluated, including enhancement/use of the APD command vehicle(s).	Obtained price quotes for in-stock vehicles from several vendors.							\$250,000	\$250,000
Revise the SOP for highrise incidents to address situations that do not fit the model of a fire on one floor	The high-rise firefighting guidelines followed by the AFD are created/promulgated by the Northern Virginia Fire Chiefs ("NOVA Chiefs") for use region-wide. The 6101 Edsall Road Incident Analysis and associated recommendations will be presented to the NOVA Chiefs with a request to review the regional high-rise operations manual. This recommendation is related to the staffing issues in recommendations #17-#21.	Due to the fiscal situation affecting all jurisdictions in the NOVA region, all projects related to the NOVA Operating Manuals, including the High-Rise Manual, have been suspended indefinitely.								
Increase staffing in the Communications Center to one supervisor and three dispatchers. (This would allow the supervisor to perform supervisory functions and oversee the operations of the Communications Center instead of being occupied with basic tasks.)	FY2010 Budget supplemental request, FY2010 = 4 FTEs.		\$300,852							\$300,852
Upgrade the Alexandria CAD system to correct operational limitations	The latest "upgrade" to the Fire CAD system did not correct the operational limitations of the existing platform. AFD and APD staff are working together to identify requirements for a new CAD platform that will meet both agencies' needs before installation in the new consolidated emergency communications center located at APD Headquarters.	Created a joint APD/AFD working group to evaluate CAD requirements, survey potential solutions, and develop an RFP for a new CAD system to be installed as part of the emergency communications center consolidation.								

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RECOMMENDATIONS		Status	FY2009	FY2010	Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Provide a CAD interface among the Alexandria, Fairfax and Arlington Communications Centers	A sub-regional CAD interface has received funding as part of the federal Urban Area Security Initiative (UASI) program for the National Capital Region (NCR). Specifications for the CAD interface are under development by the regional information technology group.	Continued regional participation in the CAD-2-CAD project.								
Consolidate the Alexandria, Fairfax and Arlington Communications Centers (as an alternative to the three preceding recommendations)	The City has a plan to consolidate its Police/Fire Communications Center in 2011.	Currently exploring options for regional emergency communications collaboration with Arlington County Office of Emergency Communications.								
Establish a regional mutual aid coordination center to manage large scale redeployments and ensure that coverage is maintained for all areas	The MWWOC Fire Chiefs Subcommittee is evaluating several options for establishing a regional operations coordinating center (ROCC).	The NOVA Fire Chiefs group piloted the ROCC concept during the 2009 Presidential Inauguration and is exploring potential federal funding opportunities for 24/7/365 operation, as well as technological adjuncts to enhance regional situational awareness.								
Provide direct MDT access to pre-fire plans, diagrams and aerial photos of target hazards	Future requirement for a full-time Computer Systems Analyst II dedicated to supporting the AFD's existing CAD system; this position will be transitioned to the consolidated workforce when the new APD HQ facility opens.				\$79,569					\$79,569
Increase the staffing of all engine and ladder companies to a minimum of four personnel on duty at all times. This change would significantly increase the operational capabilities of each Alexandria company and provide compatibility with the Fairfax County and Arlington Fire Departments.	Propose 5-year phase-in. Year 1, two companies = 6 FTEs; Year 2, four companies + 1 relief position = 13 FTEs; Year 3, four companies + 1 relief position = 13 FTEs; Year 4, one company + 1 relief position = 4 FTEs; [Planned opening of Station 210 in late-FY2012 will require one new fire company.]	Received notification of award in February 2009 for a FY2008 Federal SAFER grant request to partially offset the cost of three (3) additional firefighters over five years.			\$701,094	\$1,519,869	\$1,519,869	\$470,724		\$4,211,556
Operate a fully staffed rescue company instead of cross staffing the heavy rescue unit with an engine company crew	Year 5, one new fire company = 13 FTEs.								\$1,388,503	\$1,388,503
Assign an aide for each Battalion Chief	Year 5, 3 FTEs.								\$353,043	\$353,043

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RECOMMENDATIONS		Status	FY2009	FY2010	Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Assign a full-time driver/operator to the lighting and air unit		Year 5, 3 FTEs.							\$353,043	\$353,043
Assign an on-duty Safety Officer		COMPLETE	Three (3) additional fire captains in the FY2009 Budget established a full-time Health and Safety Unit (HSU) providing 24/7/365 coverage for emergency incident response and conducting proactive safety management activities.							
ESTIMATED ANNUAL COST*				\$300,852	\$825,143	\$1,519,869	\$1,519,869	\$470,724	\$2,344,589	\$6,981,046
OPERATIONAL FTEs			3	4	7	13	13	4	19	63
			FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Totals
Note: Expressed in FY 2009 dollars										