



**FEMA**

R0387

Dear National Fire Academy Student:

Congratulations on your acceptance into the U.S. Fire Administration (USFA), National Fire Academy (NFA) “Analytical Tools for Decision-Making” (ATDM) course.

During the course, you will explore seven units of instruction, analysis for decision-making, emerging technologies, data and reporting, analytical tools for decision-making, geospatial technologies for risk reduction, presenting your results, and a final graded activity. These units prepare the midlevel manager to participate in decision-making. In exploring these issues, you will go beyond data and analytics to identify opportunities and solutions.

In order for the course to be meaningful, you will need to complete the attached pre-course assignment before coming to Emmitsburg, Maryland.

Approximately 30 days prior to the start of the course, you will receive access to the NFA’s Learning Management System (LMS). You will be able to post your pre-course assignments included in this letter and find additional pre-course activities.

This class is a six-day class which starts on Sunday at 8 a.m. Subsequent classes will meet daily from 8 a.m. to 5 p.m., with evening classes possible.

The NFA classroom environment is computer based. You are responsible for the security and maintenance of your electronic equipment. The NFA cannot provide computer software, hardware (which includes disks, printers, scanners, monitors, etc.), or technical support for your device. For your convenience, we do provide surge protector power strips at each classroom table.

Should you need to access the Student Computer Lab, it is located in Building D and is available for all students to use. The lab is open daily with a technician available Monday through Thursday from 1700 to 2100 (5 p.m. to 9 p.m.) and on Saturdays from 0900 to 1200 (9 a.m. to noon). The lab uses Windows 7 and Office 2013 as the software standard.

If you need additional information related to your course’s content or course requirements, please contact Dave Donohue, Planning and Information Management Training Specialist, at (301) 447-1094, or by email at [david.donohue@fema.dhs.gov](mailto:david.donohue@fema.dhs.gov).

Sincerely,

A handwritten signature in blue ink that reads "Tonya L. Hoover". The signature is written in a cursive style with a large, stylized initial "T".

Tonya L. Hoover, Superintendent  
National Fire Academy  
U.S. Fire Administration

Enclosure

## **Pre-Course Assignment**

### **Part 1: Emerging Technology Presentation (Activity 2.2)**

This course deals with new and differing technologies that are changing the way the emergency services operate. The course has been designed to provide a broad overview to students to introduce new concepts and examples of current emerging technologies.

To keep the course current and to get real-world examples, this particular assignment has been developed to allow students to bring and share, from their own experiences from their own agencies, information about a recent introduction of an emerging technology that they and their agencies have experienced.

If you have never investigated a new technology, it is your responsibility to do that research on some new technology that you might be interested in implementing in your agency before attending class. Focus your selection on technologies that promote better decision-making.

The purpose of this pre-course assignment will be to allow students to share their own experiences with each other at their table groups, taking the best examples from each table group and sharing them with the entire class.

Your assignment, to be completed prior to your arrival on campus, will be as follows:

- In your own agency, within the last three years, what have you implemented that could be considered an emerging or cutting-edge technology?
- Bring with you any pictures of the technology to aid with your presentation.

Be prepared to provide the following information about the technology:

- What was the issue facing your agency that brought about the need for the acquisition of the technology?
  
  
  
  
  
  
  
  
  
  
- Have you ever implemented new technologies in order to facilitate better decision-making?

- What analysis did you do to decide on a new technology?
- What was the process that you used to evaluate potential alternative products, and what led you to the ultimate selection of the technology now in place?
- What training needs and/or hardware acquisitions were required to fully implement the technology? Did you know that going in?
- What was the total cost of the acquisition?
- Were there any unforeseen issues that arose during implementation? If so, what were they, and how were they rectified?
- On a scale of 1 to 10, with 10 being the highest, how would you rate the effectiveness of your technology acquisition?

- Would you recommend the technology to your fellow classmates for their own agencies if circumstances were similar to your original need?
  
- Do you have any contact information, such as website address or product distributor, that you could share if students are interested in seeking further information?

## **Part 2: Decisions You Have Made (Activity 1.2)**

1. In your career to date, select one nonemergency situation decision you made that had a significant positive impact on your organization. Answer the following questions regarding the decision.

Give a little background information on the situation that caused you to make that decision.

- Who was involved?
  
- Why were you the one who was involved in the decision-making process?
  
- Why do you view the decision that you made having a significant impact on your organization?

- What was it you relied on in coming up with your decision?
- In hindsight, what would you do differently if faced with the same situation?
- What role did information or data play in your thought process?
- On a scale of 1 to 10, with 10 being the highest, how would you rate your decision-making performance in this situation?
- If you didn't give yourself a 10, what could you have done to have improved your score?
- If you were to break down your decision-making process in this situation, what would've been the component parts or steps?

- What did you learn from the process?
- Were there any unforeseen circumstances that happened as a result of this decision?

2. Answer the following questions, based on a decision that you consider to be a failure or a decision that had a significant negative impact on the organization.

Give a little background information on the situation that caused you to make that decision.

- Who was involved?
- Why were you the one who was involved in the decision-making process?
- Why do you view the decision that you made having a significant impact on your organization?

- What was it you relied on in coming up with your decision?
- In hindsight, what would you do differently if faced with the same situation?
- What role did information or data play in your thought process?
- On a scale of 1 to 10, with 10 being the highest, how would you rate your decision-making performance in this situation?
- If you didn't give yourself a 10, what could you have done to have improved your score?
- If you were to break down your decision-making process in this situation, what would've been the component parts or steps?

- What did you learn from the process?
  
  - Were there any unforeseen circumstances that happened as a result of this decision?
3. Finally answer this final question based on comparing and contrasting the answers to the above questions.
- Are there any similarities that you noticed in your answers to the two questions above?
  
  - What are the significant differences that you noticed in your answers to the two questions above?
  
  - What analysis of the new technology was done prior to the final selection?



### **Part 3: Self-Contained Breathing Apparatus (Activity 4.3)**

Every fire department in the United States uses a self-contained breathing apparatus (SCBA). The selection of which brand of SCBA a particular department uses is an important decision that affects every member of the department. The decision that is made is a 15-year decision based on current National Fire Protection Association standards regarding service life for SCBAs. Answer the following questions regarding your department's last selection process for the acquisition of SCBAs for your department.

1. Were you personally involved at any point in the selection process? If you were not, you will need to contact someone in your agency who was to answer the remaining questions.
2. If so, what was your role and how did you participate in the selection process?
3. When was the last major purchase of SCBAs for your department?
4. When is the next major purchase of the SCBAs for your department scheduled to take place?

5. As best as you can, reconstruct the factors that were used in determining which breathing apparatus to purchase. These could include such items as cost, training resources, maintenance issues, after-sales support and recommendations. This is not an all-inclusive list, and you could have other factors that were considered.
  
6. Was there any weighting of the factors that you developed in Question 5, or were they all equal weight?
  
7. How many different vendors did you consider in your purchasing decision? List the vendors that you considered.
  
8. Were there any intangibles that entered into the decision-making process?
  
9. If you could design an evaluation and purchasing process for the selection of breathing apparatus, what would that be and what would it look like? A graphic depiction should be developed to answer this question.

10. At what level in your organization is the decision-making process for breathing apparatus purchase made?
  
  
  
  
  
  
  
  
  
  
11. What levels within the organization participate in the selection process for a recommendation of which breathing apparatus to purchase?
  
  
  
  
  
  
  
  
  
  
12. What is the last price you paid for a complete breathing apparatus ensemble? This would include backpack, bottle and facepiece.
  
  
  
  
  
  
  
  
  
  
13. What is the last price you paid for a spare bottle?
  
  
  
  
  
  
  
  
  
  
14. What is the last price you paid for a facepiece?
  
  
  
  
  
  
  
  
  
  
15. Are you personally satisfied with the decision that was made in the last SCBA purchase? Why or why not?

## Part 4: Pre-Course Activity Learning Management System Discussion Board

The Department of Homeland Security Science and Technology Program has several projects that seek to develop, adapt or incorporate new technologies to the first responder community. For example, the BIRD Homeland Security Program (<http://www.birdf.com/hls-call-for-proposals/>) is an annual venture that looks at proposals that may benefit fire and emergency medical services responders. In the 2019 call for proposals, the following gaps were identified:

1. The ability to know the location of responders and their proximity to risks and hazards in real time.
2. The ability to detect, monitor and analyze passive and active threats and hazards at incident scene in real time.
3. The ability to rapidly identify hazardous agents and contaminants.
4. The ability to incorporate information from multiple and nontraditional sources (e.g., crowdsourcing and social media) into incident command and operations.
5. The ability to communicate with responders in any environmental conditions (including through barriers, inside buildings and underground).
6. Communications systems that are hands-free, ergonomically optimized and can be integrated into personal protective equipment.
7. The ability to remotely monitor the tactical actions and progress of all responders involved in the incident in real time.
8. The ability to identify trends, patterns, and important content from large volumes of information from multiple sources (including nontraditional sources) to support incident decision-making.
9. The ability to identify, assess and validate emergency response-related software applications.
10. Protective clothing and equipment for all responders that protects against multiple hazards.
11. The ability to identify what resources are available to support a response (including resources not traditionally involved in response), what their capabilities are and where they are, in real time.
12. The ability to monitor the status of resources and their functionality in current conditions, in real time.
13. The ability to remotely scan an incident scene for signs of life and decomposition to identify and locate casualties and fatalities.
14. Readily accessible, high-fidelity simulation tools to support training and exercises in incident management and response.
15. The ability to monitor and analyze the resilience of the civilian population and influence it by using various methods such as social media, publications, direct instructions, etc.
16. Technological means and devices for handling long-term emergencies in urban arenas, including natural and man-made disasters, etc.
17. The ability to detect and deal with, in real time, people's stress conditions (first responders and civilians).
18. The ability to manage, control and contain large-scale riots and public disorder events.

19. The ability to neutralize people suspected of being aggressive, violent, harmful and dangerous to the safety and security of innocent citizens and responders, by using non-lethal weapons.
20. Remote detection capabilities of any kind of weapon (knife, gun, explosive device, etc.) on a person's body, personal belongings or baggage.
21. The ability to remotely detect and contain miniature hostile drones.

**Assignment:**

**Option A:** Select one of the gaps listed and identify a current technology that may bridge the gap in the short term. Develop a presentation of at least 10 slides, including title and reference slides (at least three sources should be cited using American Psychological Association (APA) format) that supports your idea. The target audience is your chief, and you are seeking funding and support for the concept. Convert the presentation to PDF and place in the drop box.

**Option B:** Identify and describe a gap that your department has and the need for a technology that would address the issue. Develop a presentation of at least 10 slides, including title and reference slides (at least 3 sources should be cited using APA format) that supports your idea. Convert the presentation to PDF and place in the drop box.

Example: Gap #4 seeks methods to incorporate social media into Incident Command and operations. During some large-scale incidents, such as hurricanes, Planning Sections have created a social media component within the situation unit. The social media component scours social media postings for photographs of damage and neighborhood pictures. They then use the geotags on the pictures to determine the location and attach the pictures to locations using Google Earth, Bing Maps or other mapping programs. This allows them to get time-stamped windshield surveys, allowing the situation unit to gain a quick overview of the situation using minimal resources. A presentation would discuss this process and methods to automate the process using algorithms designed to seek pictures based on location and what the picture shows (requiring a learning algorithm).