STATEMENT OF WORK (SOW)
PURVIS FIRE STATION ALERTING SYSTEM
FOR THE CITY OF AURORA

1.0 Scope

The City of Aurora (Customer) seeks the purchase, configuration, implementation, and installation of an IP-based PURVIS Fire Station Alerting System™ (PURVIS FSAS™). This system must interface with the Customer's Hexagon Computer Aided Dispatch (CAD) System at the Customer's Dispatch Center utilizing the Hexagon-supplied interface from the Hexagon system to the PURVIS FSAS Application Programming Interface (API). The Customer is responsible for purchasing this interface from Hexagon and the interface is not included in PURVIS's quote or SOW. With this interface in place, the PURVIS FSAS must automatically transmit incident detail from the CAD system via automated voice announcements over the Customer's existing radio system and to the Customer's fire stations via the Customer's existing IP network. The project includes the purchase and implementation of PURVIS FSAS central equipment for the Customer's two (2) Dispatch Centers as well as the purchase, implementation, and installation of the PURVIS FSAS fire station-based control and alerting equipment for the Customer's nine (9) fire stations. The project does not include the installation of any required 120VAC power for the FSAS devices.

2.0 Task Description

The scope and tasks identified in this statement of work represent the complete PURVIS FSAS implementation for the Customer. PURVIS will provide the Customer with the PURVIS Fire Station Alerting System and the PURVIS Team will perform the following tasks in support of the system implementation:

Task A. FSAS Procurement, Assembly, and Configuration

PURVIS will procure, assemble, and configure the PURVIS-quoted PURVIS FSAS dispatch and station equipment for the Customer. All system design and software components will be based on the current PURVIS FSAS. No new custom software development or new software functionality is included with this implementation.

As part of the project planning phase, PURVIS will work with the Customer to define a System Configuration Document and a Network Configuration Document. These two documents define the Customer's technical and operational details that will be used by the PURVIS Engineering organization to develop, configure and test the requirements of the Customer.

Following project start and as part of the implementation phase project kickoff, PURVIS will work with the Customer to collect the information required for two configuration documents. The Customer's input for these documents is crucial, since incorrect or incomplete information may potentially impact the project's resources and schedule.

PURVIS will configure the PURVIS FSAS Central Servers, DM Consoles and the Station Control Units to meet the System Technical Requirements provided below.

SYSTEM TECHNICAL REQUIREMENTS

The following PURVIS FSAS components are required for the Customer at the Dispatch Center:

1. PURVIS FSAS Virtual Servers

   a. The core of the PURVIS FSAS is the Central Server. The Central Server maintains a central repository of all configuration and connection information. During operation, the PURVIS FSAS Central Servers process CAD data transmitted by the CAD interface and provides dispatch data to the fire station(s) involved in the incident. Additionally, the Central Servers are responsible for maintaining communication with all critical PURVIS FSAS software and hardware components. As such, the servers continuously communicate with the Customer's Hexagon server via the PURVIS API, with the PURVIS FSAS DM Consoles, the PURVIS FSAS Radio Interface Units, and the PURVIS FSAS SCUs.

   b. The Customer is responsible for providing two (2) virtual servers that meet the PURVIS FSAS Virtual Server Requirements for the production PURVIS FSAS in the Customer. No physical servers will be provided by PURVIS. The Customer is also responsible for supplying the Microsoft Windows Server licenses and Microsoft SQL licenses required for the Customer's virtual servers.

   c. The minimum requirements for each of the two virtual servers supplied by the Customer are as follows:

      Central Server:
      - OS: Windows Server 2019
        - APPS: FSAS Central Server
      - CPU: 2 Cores
      - RAM: 8G
      - DISK: 220G
        - C: (OS) - 100G
        - E: (APP) - 120G
      - *NIC: 2
        - FSAS Network (WAN)
        - Radio Interface Unit (RIU) Network (LAN)

      Database Server:
      - OS: Windows Server 2019
        - APPS: FSAS Database
        - SQL: MSSQL 2019 Standard
          - FSAS uses Core License Model = 1 SQL License for 2 Cores
          - FSAS does not support SQL client license model

- CPU: 2 Cores
- RAM: 8G
- DISK: 600G
  - C: (OS) - 100G
  - E: (SQL) - 500G
- *NIC: 1
  - FSAS Network (WAN)

Core / Load Balancer Server:

- OS: Linux Ubuntu 20.04
  - APPS: FSAS Core and Load Balancer
- CPU: 2 Cores
- RAM: 4G
- DISK: 80G
- *NIC: 1
  - FSAS Network (WAN)

Core Quorum Server:

- OS: Linux Ubuntu 20.04
  - APPS: FSAS ELK Logging
- CPU: 1 Cores
- RAM: 4G
- DISK: 80G
- *NIC: 1
  - FSAS Network (WAN)

*Physical NIC for FSAS Network (WAN) can be shared across all virtual machines

2. PURVIS FSAS Dispatch Management Console (Qty 2)

   a. The PURVIS FSAS DM Console Software is a permissions-based application that continually communicates with the Central Server(s) and provides the ability to manage, control, test, monitor, and configure the PURVIS FSAS. The delivered system for the Customer includes two (2) DM Consoles and software license for the Dispatch Centers.

3. Radio Interface Unit (Qty 2)

   a. The delivered PURVIS FSAS includes two (2) PURVIS FSAS Radio Interface Units for the Dispatch Centers.

      The RIU will broadcast analog tones (two tone) and automated voice announcements over one (1) talk group or channel on the Customer's existing radio system. The Customer has no requirements for the PURVIS FSAS to generate and/or transmit digital tones on the Customer's radio system.

The PURVIS FSAS RIU is rack-mountable device that connects the PURVIS FSAS Central Server with the Customer's radio system. The PURVIS FSAS RIU can connect to VHF, UHF, 700MHz, 800MHz, and P25 radio systems. The PURVIS FSAS RIU must be installed within 25 feet of the radio that it connects with.

The PURVIS FSAS RIU will connect with the existing radio system through a Customer-supplied dedicated radio for the channel or talk group that the system will alert over (1 radio per RIU). The radio must have an auxiliary microphone input, an auxiliary speaker output, and an auxiliary PTT input that supports dry contact closure. For the PURVIS FSAS to detect that the radio channel/talk group is busy, the radio must have a dry contact closure output. We prefer radios that also have a separate dry contact closure that provides confirmation to the PURVIS FSAS that the FSAS has control of the channel/talk group when transmitting.

The following PURVIS FSAS components are required for the Customer at the Fire Stations:

1. PURVIS FSAS Station Control Unit (Qty 9)

    a. The delivered system includes one (1) PURVIS FSAS Station Control Unit at each of the nine (9) Fire Stations. The PURVIS FSAS SCU receives incidents/alerts and activates all appropriate station electronics, as well as playing tones and messages over the station speakers.

2. PURVIS FSAS Station Hardware:

    a. The delivered system includes wall mount hardware and alerting electronics that are identified in PURVIS Quote No. PC2022-166R6. The specific quantities and locations of the alerting devices have been defined by the Customer.

Task B. Installation.

A3 Communications, a PURVIS subcontractor, will install the PURVIS provided components at Fire Stations. The Customer is responsible for system installation at the dispatch centers.

Task C. System Testing.

PURVIS will be responsible for the conduct of system integration, verification and validation testing. As part of this testing, PURVIS will prepare an overall Acceptance Test Plan that will document these activities and document the Functional Acceptance Testing. PURVIS will update existing PURVIS FSAS test scripts to reflect the Customer's FSAS configuration.

PURVIS will also conduct Functional Acceptance Testing, with Customer personnel witnessing this test. PURVIS FSAS Test Scripts will be used as the basis of the Functional Acceptance Testing. Successful completion of Acceptance Testing will constitute system acceptance.

Task D. Project Management Services.

PURVIS will provide project management services in support of the procurement, assembly, configuration, testing, and integration of the PURVIS FSAS into the Customer's dispatch centers and at the fire stations.

PURVIS will provide services to coordinate, lead, monitor and report all project activities. Services include scheduling, status reporting, coordinating activities of vendors, identifying the Customer and other agency dependencies, and ensuring completion and acceptance of all activities.

PURVIS will participate in regularly scheduled status meetings/conference calls with the Customer. Meeting participants will include, at minimum, the Customer Project Manager and PURVIS Project Manager as well as required individuals based on the agenda items defined for that specific meeting.

PURVIS will provide a project status report every other week that will include:

- Progress against schedule
- Key accomplishments for the reporting period
- Short-term upcoming tasks/activities
- Identification of project risks and mitigation options
- Open and closed action item lists.

Task E. Training.

In support of the FSAS implementation, the PURVIS Team will provide the following training:

- Training for Dispatchers, Supervisors, Systems Administrators and Fire Personnel. The training below will be provided in a "train the trainer" format for up to ten (10) personnel.
    - FSAS Familiarization Training (approximately 30 minutes).

- FSAS DM Console Training (approximately 30 minutes).
- FSAS Station Control Unit (approximately 30 minutes).

Task F. Warranty/Maintenance.

PURVIS will provide a remote Warranty on all hardware and software for a period of one year from final system acceptance by the Customer. Warranty services will be provided in accordance with the PURVIS FSAS Warranty and Service Agreement.

Upon the expiration of the initial one-year Warranty period, Annual Maintenance may be purchased as an option that may be renewed each year.

3.0 Project Schedule

PURVIS will work with the Customer to mutually develop a comprehensive implementation schedule as part of the project kickoff activities.

The project schedule will be monitored weekly, formally updated with any required changes, and distributed monthly to all project team members.

4.0 Assumptions

The scope of this SOW is limited to the equipment, software and documentation identified within the SOW. Requests to procure and/or modify any additional equipment, software and/or documentation will be considered out of scope.

Customer's Role

In order for PURVIS to fulfill project requirements and avoid delays, the Customer will perform the following**:**

Customer

- Assign a primary point of contact for the project.
- Key project team members will participate in regularly scheduled project meetings.
- Ensure PURVIS has timely access to all necessary physical locations during the project. Communicate all project activities to dispatch and station personnel.
- Make dispatch and fire station operational personnel available to provide operational data necessary for system configuration.
- Make personnel available to approve recommended acceptance test procedures and to participate in the execution of these procedures.
- Provide approval of all PURVIS documentation within 10 working days of delivery.

Hardware Requirements

- Provide 12" x 30" of desktop space at the Dispatch Center for the DM Console PC workstation.

- Provide UPS backup power and surge protected circuits to the Central Servers, DM Consoles and Radio Interface Units.
- The following FSAS station hardware will be installed in the customer's existing equipment rack at each station:

Item	Power Requirements	Environment Requirements	
		Space Requirements	Other Requirements
Station Control Unit	Input: 120VAC, 20 Amp outlet. Power will be supplied from the PURVIS provided UPS.	Rack Mounted - 3U of 19" rack space, depth of 24".	To ensure system longevity and reliability, the SCU operating temperature is 32° F to 100° F
Remote Touch Screen (RTS) Video Distribution	Input: 120VAC, 15 Amp outlet. Power will be supplied from the PURVIS provided UPS.	Dimensions: 3.5x3.1x1.2 in Weight: 1.2 lbs.	To ensure system longevity and reliability, the operating temperature range is 32° F to 100° F.
24 Port Unmanaged Network Switch	Input: 120VAC, 15 Amp outlet. Power will be supplied from the PURVIS provided UPS.	Rack Mounted - 1U of 19" rack space, depth of 16".	To ensure system longevity and reliability, the operating temperature range is 32° F to 100° F.
Uninterruptible Power Supply	Input: A single dedicated 120V, 20AMP circuit in the fire station with a minimum of one outlet. Power termination shall be located within 6 feet of the PURVIS FSAS UPS in the station.	Rack Mounted - 2U of 19" rack space. Depth of 20". Weight: 58 lbs	To ensure system longevity and reliability, the operating temperature range is 32° F to 100° F.
Audio/Relay Expansion Module (ARXM)	Input: 120VAC, 15 Amp outlet. Power will be supplied from the PURVIS provided UPS.	Rack Mounted - 2U of 19" rack space, depth of 24". Weight: 17.0 lbs.	To ensure system longevity and reliability, the operating temperature range is 32° F to 100° F.
Amplifier 1 Ch (70v) 250w	Input: 120VAC, 15 Amp outlet. Power will be supplied from the PURVIS provided UPS.	Rack Mounted - 2U of 19" rack space. Depth of 20".	To ensure system longevity and reliability, the operating temperature range is 32° F to 100° F.
8 Port Unmanaged	Input: 120VAC, 15 Amp outlet. Power will be	Dimensions: 6-1/4x4x1-1/8 in	To ensure system longevity and reliability,

Message Board Switch	supplied from the PURVIS provided UPS	Weight: .6 lbs.	the operating temperature range is 32º F to 100º F.
Message Board Display Module	Input: 120VAC, 15 Amp outlet. Power will be supplied from the PURVIS provided UPS	Dimensions: 4-1/8x3-3/4x1-1/4 in Weight: .6 lbs.	To ensure system longevity and reliability, the operating temperature range is 32º F to 100º F.

Power Requirements

- Provide all 120VAC power for the FSAS devices as identified below:
    a. Provide one 120V, 20AMP circuit with a minimum of four (4) outlets powered by the Customer provided Uninterruptible Power Supply (UPS) at the Dispatch Center. Outlets will be located within 5 feet of the location of the hardware install location.
    b. The Customer will provide one 120V, 20AMP dedicated circuit at each fire station for the FSAS Uninterruptable Power Supply.
    c. Provide one 120V, 15AMP duplex outlet at each fire station for each PURVIS FSAS Remote Touch Screen, and Message Board. Outlets will be located within 5 feet of the location of each device

Network

- Provide the following firewall changes/additions (within 30 calendar days of project start):
    - Configure firewall ports on the Dispatch Center's network where the PURVIS FSAS Central Server is installed. These include the following ports:
        - 20100-20150
        - 40100-40150
        - 21,22,23,80,443,445,3389,25,587,465,110,995, 1433,5038
- Provide remote access via a browser-based remote login software tool access the Central Server for PURVIS personnel (within 30 calendar days of project start).
- Provide routing on the Dispatch Center's network to the Central Servers, the FSAS Dispatch Management Consoles and the station SCUs and Message Board Modules (within 30 calendar days of project start). Network routing between the Dispatch Center and the Fire Stations shall be designed, implemented and tested by the Customer.
- The bandwidth required from the FSAS Central Servers to the FSAS Station Control Units (SCU) are minimal, with a compressed incident message size of around 1200-1300 bytes. A connection in excess of 5-10KB/s is required. For software updates and maintenance over the network, a bandwidth in excess of 1Mb/s is recommended, but not required
- Provide the static WAN IP addresses as required for the FSAS Central Servers, FSAS DM Console, and each station's SCU and Message Board Module.
- Provide an Ethernet TCP/IP based physical connection for the FSAS Central Servers, FSAS DM Console, Radio Interfaces, Station Control Units and Message Board Modules.

- Implement firewalls as required for FSAS at both the Dispatch Center and Fire Stations. Any hardware, software and services required to implement the firewalls are the responsibility of the Customer.
- Provide two (2) Ethernet network switch connection ports at each fire station for the PURVIS FSAS SCU and Message Board Display Module.
- Provide PURVIS with remote access to the FSAS via a browser-based remote login software.
- Time sync the FSAS Central Servers.
- Provide a point of contact available 24/7/365 for WAN support.
- Provide a valid email user account and access to an email server to allow support emails to be generated.

Central Server

- Provide virtual servers that meet the PURVIS FSAS Virtual Server Requirements for the production PURVIS FSAS for the Customer.
- Provide the Microsoft Windows Server licenses and Microsoft SQL licenses required for the Customer's virtual servers.
- Create and provide user accounts with administrator privileges (within 30 calendar days of project start).
- Identify Customer security software and policies, if required (within 15 calendar days of project start).
- Setup e-mail configurations/accounts for FSAS (within 30 calendar days of project start).
- Provide redundant switches to accommodate server teamed network connections (within 45 calendar days of project start).
- Provide time sync server information to the Central Servers (within 45 calendar days of project start).

CAD Interface

- CAD integration is based on Hexagon integrating with the standard PURVIS FSAS API. Any fees that Hexagon may assess the Customer for the interface or to support the CAD interface effort are not included. Any annual maintenance fees that may be charged by Hexagon on the CAD interface will be billed directly to the Customer by Hexagon. Hexagon CAD interface annual maintenance fees are not included in our proposal.
- No modifications to the PURVIS FSAS will be required to support the Hexagon CAD interface. Any agreed to modification requests will be performed at an additional cost.
- It is expected that the Hexagon interface will be available for testing with PURVIS within 45 calendar days of contract award. The date of final system cutover will be dependent on the delivery of the CAD interface from Hexagon.
- Provide electronic copy of CAD Unit and Unit Incident Data within 10 calendar days of project start.
- Provide access to a test / training CAD (or other CAD vendor server if test / training CAD not available) for the purposes of PURVIS integration testing. This includes the ability to login to the test / training CAD to generate test runs through FSAS.
- Use PURVIS FSAS management tools to adjust text to speech pronunciation of addresses.
- Use PURVIS FSAS management tools to maintain CAD Unit and Incident Data.

- Due to the tight integration schedule between the CAD System and the PURVIS FSAS, during implementation and during the lifecycle of systems, the Customer will coordinate scheduling of modifications of the CAD system with PURVIS.

Radio

- Provide 1U of rack space with a depth of 24" for each RIU installation.
- Provide access to radio equipment maintenance and support personnel to ensure quick and seamless integration efforts within 10 working days of project start.
- Provide one dedicated radio for each RIU for the talk group or channel that the system will alert over. The radio must be within 25 feet of the RIU. The radio must have an auxiliary microphone input, an auxiliary speaker output, and an auxiliary PTT input that supports dry contact closure. For the PURVIS FSAS to detect that the radio channel/talk group is busy, the radio must have a dry contact closure output. PURVIS prefers radios that also have a separate dry contact closure that provides confirmation to the PURVIS FSAS that the PURVIS FSAS has control of the channel/talk group when transmitting.
- Perform all radio or console programming changes required to support the PURVIS FSAS. This includes channel/talk group and any other custom configurations. PURVIS will provide guidance in programming.
- Maintain all radio equipment required for PURVIS FSAS communications. This includes preventive maintenance, signal strength, issues resolution, software updates and other support.
- Provide a single point of contact for all radio related issues.
- PURVIS is not responsible for resolving any radio reception / coverage issues.

E-mail Notifications

- Supply the contact information for the individuals to be notified of system trouble via auto-generated email notifications (within 30 calendar days of project start).

Training

- Ensure all personnel scheduled for training are present at schedule time(s).

Dispatch Center Installation

- Customer is responsible for installing the PURVIS FSAS hardware in the dispatch centers.

Fire Station Installation

- A3 Communications will install the PURVIS FSAS hardware and alerting devices in the fire stations.
- PURVIS assumes that the PURVIS Team will have full and timely access to the installation site on the date(s) specified in the Project Schedule. Access on each date will be all day (7:00am – 5:00pm local time).
- PURVIS assumes the Customer will identify the location of all new PURVIS FSAS hardware prior to the start of equipment installation.
- PURVIS FSAS device installation
    a. PURVIS assumes that the FSAS Station Control Unit will be installed within the same room as the existing Customer IP WAN connection in the fire station.

b. All cabling routing will be done above drop ceilings and in existing raceways, conduit, and wall/ceiling openings.

- Existing Equipment
  a. Provide a dedicated radio at each fire station within close proximity of the PURVIS FSAS Station Control Unit.
  b. Provide a rack with sufficient rack space for the PURVIS FSAS rack-mounted equipment in each station.
  c. The PURVIS FSAS will interface with several existing speakers in the fire stations as determined during the fire station site visits on 6/28/23. PURVIS is not responsible for the performance or the maintenance of any existing Customer speakers connected to the PURVIS FSAS. Rewiring of existing speakers is not included in the PURVIS price or SOW. The PURVIS FSAS will connect with the Customer's existing audio amplifier in fire stations 4 and 9.
  d. Integration into any other existing legacy devices such as house lights, gas appliance shutoff controls, bay days, etc. is not included in this SOW and will be considered out of scope.
- Fire Station Repair
  a. Any ceiling tiles damaged during installation will be replaced with similar tiles but exact color and type match cannot be guaranteed.
  b. Any damaged paint / drywall will be repaired with similar colors but exact color match cannot be guaranteed.
- PURVIS is not responsible for the removal and/or abatement of asbestos or lead paint in any location.
- The PURVIS Team is not responsible for the removal or disposal of any existing equipment or the repair of any facility walls, ceilings etc. as a result of existing equipment removal.

Warranty/Maintenance

- Provide PURVIS with remote access to the PURVIS FSAS via VPN tunnel or secure software.
- PURVIS will provide remote warranty services only. No on-site coverage is included.
- Post Warranty support quoted includes remote support only.
- The Customer will designate a single point of contact as the person to contact the PURVIS help desk to request service and to request Customer personnel for troubleshooting or repair services.

5.0 System Acceptance

System Acceptance will be based on successful execution of the Functional Acceptance Testing using the FSAS Test Scripts provided by PURVIS. Successful execution is defined as tests that are run with no major system problems identified. Major system problems are problems which prevent one or more stations from being alerted or dispatches from being announced over the correct radio channel.

6.0 Acknowledgement

I acknowledge that I have read, and understand, the Statement of Work, and all Project Assumptions.

_____
Name

_____ _____
Signature Date