



DEPARTMENT OF PROCUREMENT SERVICES  
NON-COMPETITIVE REVIEW BOARD (NCRB) APPLICATION

RECEIVED  
JAN 14 2020  
BY: *[Signature]*

Complete this cover form and the **Non-Competitive Procurement Application Worksheet** in detail. Refer to the page entitled "Instructions for Non-Competitive Procurement Application" for completing this application in accordance with its policy regarding NCRB. Complete "other" subject area if additional information is needed. Subject areas must be fully completed and responses merely referencing attachments will not be accepted and will be immediately rejected.

Department	Originator Name	Telephone	Date	Signature of Application Author
Aviation	Keith Wisniewski	773-894-0162	1/7/2020	<i>[Signature]</i>
Contract Liaison	Email Contract Liaison	Telephone		
Dave Bowman	david.bowman@cityofchicago.org	773-686-7089		

List Name of NCRB Attendees/Department  
 Keith Wisniewski - Aviation - ORD  
 David Kaufman - Aviation - MDW  
 David Bowman - Aviation  
 George Lyman - Aviation - ORD

Request NCRB review be conducted for the product(s) and/or service(s) described herein.  
 Company: L3Harris Technologies, Inc.

Contact Person: Jessica Martell  
 Phone: 571-230-8200  
 Email: jessica.martell@l3harris.com

Project Description: Installation and Maintenance of Exelis VMAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Vehicle Tracking Units

This is a request for:

New Contract       Amendment / Modification

Contract Type

Blanket Agreement    Term: 120 (# of mo)       Time Extension       Vendor Limit Increase       Scope Change

Standard Agreement

Type of Modification

Contract Number: \_\_\_\_\_  
 Specification Number: \_\_\_\_\_  
 Modification Number: \_\_\_\_\_

Department Request Approval	Recommended Approval
<i>[Signature]</i> JAN 09 2020	<i>[Signature]</i> FEB 26 2020
DEPARTMENT HEAD OR DESIGNEE	BOARD CHAIRPERSON
<u>RIFF BUTLER</u>	<u>Steven M. Loboda</u>
PRINT NAME	PRINT NAME

(FOR NCRB USE ONLY)

Recommend Approval/Date: \_\_\_\_\_

Return to Department/Date: \_\_\_\_\_

Rejected/Date: \_\_\_\_\_

Approved       Rejected

*[Signature]*  
 CHIEF PROCUREMENT OFFICER      26 February 2020  
 DATE



DEPARTMENT OF PROCUREMENT SERVICES  
NON-COMPETITIVE REVIEW BOARD (NCRB) APPLICATION  
JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT WORKSHEET

All applicable information on this worksheet must be addressed using each question found on the "Instructions for Non-Competitive Procurement Application" in this application.

Justification for Non-Competitive Procurement Worksheet

PROCUREMENT HISTORY

1. Describe the requirement and how it evolved from initial planning to its present status.

According to the Federal Aviation Administration (FAA), potentially serious incidents and accidents involving aircraft and vehicles at airports occur every year. many of these events occur during periods of reduced visibility for flight crews and air traffic controllers. On November 14, 2011, the FAA released Advisory Circular (AC) 150/5220-26 to provide guidance on the installation of Airport Ground Vehicle Automatic Dependent Surveillance - Broadcast (ADS-B) Out Squitter Equipment for airport ground vehicles, which the FAA refers to as a "cornerstone technology in the capacity of the National Airspace System". According to the AC "ADS-B will provide improved surveillance in the terminal, en route, and on surface environments, and will provide equipped aircraft with shared situational awareness via a cockpit display of proximate traffic." The AC also states that "the FAA strongly encourages airport operators to voluntarily equip appropriate vehicles with airport ground vehicle ADS-B squitter units.

Appendix A to AC 150/5220-26 presents the list of products meeting the requirements of the ADS-B specification.

Over the course the past few years the City of Chicago Department of Aviation (CDA) has purchased 102 units for O'Hare (ORD) and 77 units for Midway (MDW). VMAT Type FDL-978-TXG/E . The units were purchased through Exelis Corporation, then Harris Corporation now L3Harris Technologies, Inc.

This proposal is to continue the maintaining of the units FAA compliance, maintenance, repair and the availability to purchase additional units. The current contract is under a 181 day extension set to expire 5/7/2020.

2. Is this a first time requirement or a continuation of previous procurement from the same source? If so, explain the procurement history.

This application is a request for a contract to continue the maintaining of the units FAA compliance, maintenance, repair and the avsailability to purchase additional units. L3Harris Technologies, Inc. (formerly know as Exelis Inc.) is the sole distributor and authorized maintainer for the units, manufactured by Free Flight Systems. See AC 150/5220-26 Appendix A. Change 1.

3. Explain attempts made to competitively bid the requirement (attach copy of sources contacted.)

L3Harris Technologies, Inc. (formerly know as Exelis Inc.) is the sole distributor and authorized maintainer for the units, manufactured by Free Flight Systems. See AC 150/5220-26 Appendix A. Also with the CDA owning 179 units in good working condition it would not be in the best interest of the City to buy new (if competitors were available) and enter into a maintence/service contract at this time.

4. Describe in detail all research done to find other sources; list other cities, companies in the industry, professional organizations contacted. List periodicals and other publications used as references.

L3Harris Technologies, Inc (formerly known as Exelis Inc.) is the sole distributor and authorized maintainer for the units. manufactured by Free Flight Systems. See AC 150/5220-26 Appendix A.

5. Explain future procurement objectives. Is this a one-time request or will future requests be made for doing business with the same source?

This is a request for a 10 year contract for maintaining the units FAA Compliance, maintenance, repair, with the availability to purchse new units (the FAA AC allows operation up to 200 units at an airport facility). Should the FAA approve additional vendors to provide ADS-B vehicle tracking units and/or whether other companies are licensed to service the FDL-978-TXG/E- model, competitive bidding may be sought.

6. Explain whether or not future competitive bidding is possible. If not, explain in detail.



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Future need for additional tracking units, replacement units, or ongoing service may be eligible for competitive bidding in the event that the FAA approves other vendors to provide ADS-B vehicle tracking units certified to be compliant. To our knowledge there is no other vendor soliciting the FAA to approve a similar type of unit at this time.

**ESTIMATED COST**

1. What is the estimated cost for this requirement or for each contract, if multiple awards are contemplated? What is the funding source?

The estimated cost is to cover a 10 year plan for service and maintenance of the already purchased 179 units between O'Hare International Airport (ORD) and Midway International Airport (MDW) (Procurement History Question #1) at \$1,555,291.00.

With the ability to purchase up to 175 units per airport facility under the guidance of FAA AC150/5220-26 ((72) additional units for ORD \$452,600.00, (98) additional units for MDW \$656,600.00)) \$2,664,491.00 plus the increased servicing and maintenance per year per the schedule below to reflect the number of units for each airport, (Table 1 Notes, Item 1) which will be budgeted for annually at each airport.

Operations & Maintenance (O&M) Funding Annually: 0740-085-4105-0440-0440

2. What is the estimated cost by fiscal year?

**VMAT PRIME PLUS MAINTENANCE ON THE CITY'S CURRENT 179 VMATS**

Table 1 presents annual VMAT pricing on The City's 179 VMAT units ((77 VMATs at Chicago Midway International Airport (MDW) and 102 VMATs at Chicago O'Hare International Airport (ORD)) as required by the Advisory Circular.

The Pricing shown represents a 3% discount from the previous VMAT Maintenance Plan provided to the CDA.

Table 1: Pricing for Annual VMAT Prime Plus O&S Service – Ten (10) Year Fixed Renewal Period Year

	2020	2021	2022	2023	2024
Annual Fee for 179 VMAT Units	\$148,570	\$148,570	\$148,570	\$148,570	\$148,570
Year	2025	2026	2027	2028	2029
Annual Fee for 179 VMAT Units	\$153,027	\$157,618	\$162,346	\$167,217	\$172,233
Total Amount	\$1,555,291				

Table 1 Notes:

- 1) Annual pricing for Prime Plus O&S is \$830 per unit for the first five (5) years of the contract (Previous Contract price was \$855.38). Pricing in years six (6) through ten (10) increases annually by 3%.
- 2) Each contract year will be invoiced annually in advance.
- 3) The annual fee for years 1 – 5 is broken out as \$84,660 for ORD and \$63,910 for MDW and increases by 3% each year for years 6 – 10.

**ADDITIONAL VMAT UNITS & VMAT INSTALLATION KITS**

Table 2 presents pricing for additional VMAT units and installation kits.

Table 2: Pricing for VMAT Units and Installation Kits Item	Amount
Internal Mount VMAT Unit with External Hard Mount Antenna (MDW & ORD's Current Setup)	\$6,200
Internal Mount VMAT Unit with External Magnetic Mount Antenna	\$6,700
Extra Internal Mount VMAT Installation Kit with External Hard Mount Antenna	\$1,950



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Extra Internal Mount VMAT Installation Kit with External Magnetic Mount Antenna \$2,450

4. Explain whether the proposed Contractor or the City has a substantial dollar investment in original design, tooling or other factors which would be duplicated at City expense if another source was considered. Describe cost savings or other measurable benefits to the City which may be achieved.

Not applicable

5. Explain what negotiation of price has occurred or will occur. Detail why the estimated cost is deemed reasonable.  
L3Harris Technologies Inc. informed CDA that the pricing provided for VMAT hardware, installation services, and ongoing operations and support services were standard fixed prices. As evidence, L3Harris provided another airport's renewal quote for the same services, and CDA confirmed that equipment and installation prices were equal, with CDA receiving a discounted annual operations and support services rate due to economies of scale. L3 Harris has provided a new pricing proposal for San Francisco Airport (SFO), included in package, and their numbers are in line with the proposal to the CDA.

**SCHEDULE REQUIREMENTS**

1. Explain how the schedule was developed and at what point the specific dates were known.

The current contract is under a 181 day extension scheduled to expire on 5-7-2020, failure to have a contract in place to support service and maintenance can jeopardize the airports safety by not having targeted vehicles of the CDA equipped with this safety device that can be identified by the FAA Air Traffic Control Tower, the CDA and other Aircraft.

2. Is lack of drawings and/or specifications a constraining factor to competitive bidding? If so, why is the proposed Contractor the only person or firm able to perform under these circumstances? Why are the drawings and specifications lacking? What is the lead time required to get drawings and specifications suitable for competition? If lack of drawings and specifications is not a constraining factor to competitive bidding, explain why only one person or firm can meet the required schedule.

Not applicable. Lack of drawings and/or specifications is not a constraining factor for this procurement.

3. Outline the required schedule by delivery or completion dates and explain the reasons why the schedule is critical.

The current contract is under a 181 day extension scheduled to expire on 5-7-2020, failure to have a contract in place to support service and maintenance can jeopardize the airports safety by not having targeted vehicles of the CDA (Airfield Operations, Vehicle Services, Chicago Fire Department and Electricians whose work is primarily conducted on the airfield movement area) equipped with functioning safety units that can be identified by the FAA Air Traffic Control Tower, the CDA and other Aircraft.

4. Describe in detail what impact delays for competitive bidding would have on City operations, programs, costs and budgeted funds.

There currently is no other vendor approved by the FAA to perform this service.

**EXCLUSIVE OR UNIQUE CAPABILITY**

1. If contemplating hiring a person or firm as a Professional Service Consultant, explain in detail what professional skills, expertise, qualifications, and/or other factors make this person or firm exclusively or uniquely qualified for the project. Attach a copy of the cost proposal, scope of services, and Temporary Consulting Services Form.

L3Harris is the only FAA-approved supplier for the VMAT ADS-B vehicle tracking units, and L3Harris' VMAT units are the only Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) vehicle tracking units that are fully compliant and certified under the FAA's Advisory Circular 150/5220-26. See the attached FAA Advisory Circular.

L3Harris is the exclusive provider of the hardware, firmware and software included with the VMAT. This exclusivity



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extends to the ability of L3Harris to provide hardware repair and replacement, software, and firmware updates as required to meet the VMAT maintenance requirements outlined in the FAA Advisory Circular. See the attached sole source justification letters from L3Harris and the VMAT manufacturer, FreeFlight Systems.

2. Does the proposed firm have personnel considered unquestionably predominant in the particular field?

As the only FAA-certified provider of the VMAT ADS-B equipment, installation and servicing sought by CDA, L3Harris personnel are without question the predominant experts in the field. FreeFlight Systems has developed the VMAT to be fully compliant with FAA's Advisory Circular 150/5220-26 and L3Harris is the only supplier to be certified by the FAA to be compliant with this circular.

3. What prior experiences of a highly specialized nature does the person or firm exclusively possess that is vital to the job, project or program?

As the exclusive VMAT providers, L3Harris has installed ADS-B equipment at 25+ASDE-X and ASSC airports around the United States.

4. What technical facilities or test equipment does the person or firm exclusively possess of a highly specialized nature which is vital to the job?

L3Harris is the only approved FAA supplier for the ADS-B vehicle tracking unit (VMAT). The VMAT is certified by the FAA to be compliant under Advisory Circular 150/5220-26. Due to the strict requirements under Advisory Circular 150/5220-26, L3Harris works closely with the airport, FAA and FCC to obtain all necessary data for proper installation and testing. L3Harris personnel will train Airport personnel on the proper way to install each kit, if desired. Once all units have been installed, L3Harris will verify the units are operating properly, conduct user training, and update configuration matrices for all units. L3Harris personnel are required to conduct a Site Acceptance Test (SAT) at the airport in accordance with Advisory Circular 150/5220-26. L3Harris is required to manage the acceptance testing process and submit SAT documents and updates to the FAA.

5. What other capabilities and/or capacity does the proposed firm possess which is necessary for the specific job, project or program which makes them the only source who can perform the work within the required time schedule without unreasonable costs to the city?

L3Harris is the only approved FAA supplier for VMAT ADS-B vehicle tracking units. L3Harris is also the only provider of VMAT support services per the VMAT manufacturer. Therefore, L3Harris is the only source who can perform the necessary work.

6. If procuring products or equipment, describe the intended use and explain any exclusive or unique capabilities, features, and/or functions the items have which no other brands or models, possess. Is compatibility with existing equipment critical from an operational standpoint? If so, provide detailed explanation?

L3Harris' VMAT is a Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) vehicle tracking unit, allowing for accurate, real-time tracking of surface vehicles in the airport movement area providing increased operational safety and efficiency. The VMAT has been developed to be fully compliant with FAA Advisory Circular 150/5220-26 and it is certified by the FAA to be compliant with the circular. The VMAT unit allows continuous transmission of vehicle position and identification. Data transmitted from vehicles is picked up by FAA ADS-B ground infrastructure and displayed on the air traffic controller displays in the tower allowing them to see vehicle locations on the movement area in relation to aircraft. Data is also displayed in the cockpit of appropriately equipped aircraft for enhanced awareness.

7. Is competition precluded because of the existence of patent rights, copyrights, trade secrets, technical data, or other proprietary data (attach documentation verifying such)?

Competition is precluded because L3Harris is the only supplier of ADS-B vehicle tracking units that are certified to be compliant with FAA Advisory Circular 150/5220-26. L3Harris is the only approved FAA supplier for the ADS-B vehicle tracking unit.

8. If procuring replacement parts and/or maintenance services, explain whether or not replacement parts and/or services can be obtained from any other sources? If not, is the proposed firm the only authorized or exclusive dealer/distributor and/or service center? If so, attach a letter from manufacturer on company letterhead.



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L3Harris is the only approved supplier for VMAT support. See the attached letter from the manufacturer, FreeFlight.

**MBE/WBE COMPLIANCE PLAN**

L3Harris is the sole source provider of VMATs, and associated installation and support services. The CDA has conducted a search on the DPS website (screen print results attached) to identify certified MBE/WBE firms that could participate in a commercially useful manner for this project and, at present, CDA has not discovered any MBE/WBE firms available on the City's directory of certified firms that could participate on this contract.

**OTHER**

1. Explain other related considerations and attach all applicable supporting documents, i.e., an approved "ITGB Form" or "Request For Individual Hire Form".



# DEPARTMENT OF PROCUREMENT SERVICES NON-COMPETITIVE REVIEW BOARD (NCRB) APPLICATION INSTRUCTIONS FOR NON-COMPETITIVE PROCUREMENT APPLICATION

## INSTRUCTIONS FOR PREPARATION OF NON-COMPETITIVE PROCUREMENT APPLICATION

If a City Department has determined that the purchase of supplies, equipment, work and/or services cannot be done on a competitive basis, a justification must be prepared on this "Justification for Non-Competitive Procurement Application" in which procurement is requested on a non-competitive basis in accordance with 65 ILCS 5/8-10-4 of the Illinois Compiled Statutes. Using this instruction sheet, all applicable information must be addressed on the worksheet. The information provided must be complete and in sufficient detail to allow for a decision to be made by the Non-Competitive Procurement Review Board. For Amendments, Modifications, describe in detail the change in terms of dollars, time period, scope of services, etc., its relationship to the original contract and the specific reasons for the change. Indicate both the original and the adjusted contract amount and/or expiration date with this change.

Attach a DPS Checklist and any other required documentation; the Board will not consider justification with incomplete information documentation or omissions.

### PROCUREMENT HISTORY

1. Describe the requirement and how it evolved from initial planning to its present status.
2. Is this a first time requirement or a continuation of previous procurement from the same source? If so, explain the procurement history.
3. Explain attempts made to competitively bid the requirement (attach copy of sources contacted).
4. Describe in detail all research done to find other sources; list other cities, companies in the industry, professional organizations contacted. List periodicals and other publications used as references.
5. Explain future procurement objectives. Is this a one-time request or will future requests be made for doing business with the same source?
6. Explain whether or not future competitive bidding is possible. If not, explain in detail.

### ESTIMATED COST

1. What is the estimated cost for this requirement or for each contract, if multiple awards are contemplated? What is the funding source?
2. What is the estimated cost by fiscal year?
3. Explain the basis for estimating the cost and what assumptions were made and/or data used (i.e., budgeted amount, previous contract price, current catalog or cost proposal from firms solicited, engineering or in-house estimate, etc.)
4. Explain whether the proposed Contractor or the City has a substantial dollar investment in original design, tooling or other factors which would be duplicated at City expense if another source was considered. Describe cost savings or other measurable benefits to the City which may be achieved.
5. Explain what negotiation of price has occurred or will occur. Detail why the estimated cost is deemed reasonable.

### SCHEDULE REQUIREMENTS

1. Explain how the schedule was developed and at what point the specific dates were known.
2. Is lack of drawings and/or specifications a constraining factor to competitive bidding? If so, why is the proposed Contractor the only person or firm able to perform under these circumstances? Why are the drawings and specifications lacking? What is the lead time required to get drawings and specifications suitable for competition? If lack of drawings and specifications is not a constraining factor to competitive bidding, explain why only one person or firm can meet the required schedule.
3. Outline the required schedule by delivery or completion dates and explain the reasons why the schedule is critical.
4. Describe in detail what impact delays for competitive bidding would have on City operations, programs, costs and budgeted funds.

### EXCLUSIVE OR UNIQUE CAPABILITY

1. If contemplating hiring a person or firm as a Professional Service Consultant, explain in detail what professional skills, expertise, qualifications, and/or other factors make this person or firm exclusively or uniquely qualified for the project. Attach a copy of the cost proposal, scope of services, and **Temporary Consulting Services Form**.
2. Does the proposed firm have personnel considered unquestionably predominant in the particular field?
3. What prior experiences of a highly specialized nature does the person or firm exclusively possess that is vital to the job, project or program?
4. What technical facilities or test equipment does the person or firm exclusively possess of a highly specialized nature which is vital to the job?
5. What other capabilities and/or capacity does the proposed firm possess which is necessary for the specific job, project or program which makes them the only source who can perform the work within the required time schedule without unreasonable costs to the City?
6. If procuring products or equipment, describe the intended use and explain any exclusive or unique capabilities, features and/or functions the items have which no other brands or models possess. Is compatibility with existing equipment critical from an operational standpoint? If so, provide detailed explanation?
7. Is competition precluded because of the existence of patent rights, copyrights, trade secrets, technical data, or other proprietary data (attach documentation verifying such)?
8. If procuring replacement parts and/or maintenance services, explain whether or not replacement parts and/or services can be obtained from any other sources? If not, is the proposed firm the only authorized or exclusive dealer/distributor and/or service center? If so, attach letter from manufacturer on company letterhead.

### MBE/WBE COMPLIANCE PLAN

- \* All submissions must contain detailed information about how the proposed firm will comply with the requirements of the City's Minority and Women Owned Business program. All submissions must include a completed C-1 and D-1 form, which is available on the Procurement Services page on the City's intranet site. The City Department must submit a Compliance Plan, including details about direct and indirect compliance.

### OTHER

1. Explain other related considerations and attach all applicable supporting documents, i.e., an **approved "ITGB Form"** or **"Request For Individual Hire Form"**.

### REVIEW AND APPROVAL

This application must be signed by both Originator of the request and signed by the Department Head. After review and final disposition from the Board, this application will be signed by the Board Chairman. After review and final disposition from the Board, this form will be presented to the Chief Procurement Officer recommending approval.



CHICAGO DEPARTMENT OF AVIATION  
CITY OF CHICAGO

To: Shannon E. Andrews  
Chief Procurement Officer

Attention: Lorel D. Blameuser  
Deputy Procurement Officer

Monica Jimenez  
First Deputy Procurement Officer

From:   
Rich Butler  
First Deputy  
Chief Administrative Officer

Date:

JAN 09 2020

Subject: **Request for New Non-Competitive Procurement Contract for Installation and Maintenance of Exelis VMAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Vehicle Tracking Units**

**Current Contract Number: 30268**  
**Current Specification Number: 123886**  
**Original End Date: 11/9/14**  
**Current End Date: 5/9/20**  
**New Requisition Number: 317578**  
**New Specification Number: 1193760**

The Chicago Department of Aviation (CDA) requests approval and assistance in awarding a ten (10) year non-competitive procurement contract to Exelis, Inc. (Exelis) for installation and maintenance of airport ground vehicle Automatic Dependent Surveillance – Broadcast (ADS-B) Out Squitter Equipment at O'Hare and Midway International Airports. ADS-B Out Squitter equipment enables vehicles to be accurately tracked and identified when moving about the airfield by use of a periodic radio-signal broadcast from the squitter unit. CDA is in the midst of a 181 days extension of the current non competitively procured contract (PO 30268) for the same equipment and services. PO 30268 was awarded to Exelis Corporation who has subsequently been acquired by L3 Harris technologies with whom the new contract would be with

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On November 14, 2011, the Federal Aviation Administration (FAA) released Advisory Circular (AC) No. 150/5220-26 to provide guidance on the installation of Airport Ground Vehicle Automatic Dependent Surveillance – Broadcast (ADS-B) Out Squitter Equipment for airport ground vehicles. This technology, which the FAA considers a “cornerstone technology in the FAA’s Next Generation Air Transportation System (NextGen) initiative,” is intended to reduce incidents and accidents involving aircraft and ground vehicles at airports. According to the AC, “the FAA strongly encourages airport operators to voluntarily equip appropriate vehicles with airport ground vehicle ADS-B squitter units.” To date, CDA feels their deployment greatly increases safety on the airfield.

Both O’Hare and Midway International Airports were among the 44 airports identified in the AC as primary locations for installation by 2017, and on September 24, 2012, the FAA issued a grant to the City of Chicago in the amount of \$421,875 for purchase and installation of squitter units at O’Hare. The FAA has been and continues to be aggressive in encouraging CDA to utilize the ADS-B units.

Appendix A to AC 150/5220-26 presents the list of products meeting the requirements of the ADS-B specification, published in the FAA document “Vehicle Automatic Dependent Surveillance – Broadcast (ADS-B) Specification, Version 2.4,” published May 1, 2012. That list is limited to exactly one (1) product, the Vehicle Movement Area Transmitter (VMAT) manufactured by FreeFlight Systems and sold by L3 Harris Technologies. which has installed VMAT equipment in several other major airports, including Boston Logan, St. Louis Lambert, and Denver International Airports under its previous name of Exelis.

This is a request for a ten (10) year contract for servicing of the existing VMAT units as well as purchase of additional units. CDA currently has a total of 179 units with 102 being deployed at O’Hare and 77 in service at Midway

The pricing provided by L3 Harris is consistent with what they provide other airports for the same technology and services.

As L3 Harris Technologies is the only vendor licensed and capable of installing and servicing this equipment, CDA is requesting a non-competitive procurement for this service. Future need for additional tracking units, replacement units, or ongoing service may be eligible for competitive bidding in the event that the FAA approves other vendors to provide ADS-B vehicle tracking units certified to be compliant with the requirements of Advisory Circular 150/5220-26.

If you have any questions or need additional information please contact David Bowman at 773-686-7089.

Thank You for your cooperation.

Procurement Type: Non-Competitive

Funding: 20 610 85 4305 0162 0162  
20 740 85 4105 0440 0440

Duration: Ten (10) Years + 181 Day Extension Option

Estimated Contract Value: \$2,664,491

User Contact: Keith Wisniewski Phone Number: 773-894-0162

User Managing Deputy: George Lyman Phone Number: 773-894-5291

The following CDA employees participated in drafting the Specifications and/or negotiating with the Contractor:

George Lyman  
Managing Deputy Commissioner

Date 1/9/20

David Kaufman  
General Manager of Airport Operations (Midway)

Date 1/9/20

David Bowman  
Supervisor of Contracts

Date 1/8/20

Keith Wisniewski  
General Manager of Airport Operations (O'Hare)

Date 1-9-20



Attach required forms for each procurement type and detailed scope of services and/or specifications and forward original documents to the Chief Procurement Officer; City Hall, Room 806.

**Date:** 1/6/2020

**Department Name:**  
Aviation

**Requisition No:** 317578      **Specification No:** 1193760

**PO No:**      **Modification No:**

**Contract Liaison:**  
David Bowman

**Telephone:**  
773 686-7089

**Email:**

**Project / Program Manager:**  
George Lyman

**Telephone:**  
773 894-5291

**Email:**

For Blanket Agreements, the lead department must consult with other departments who may want to participate in the Blanket Agreement. If grant funded, attach copy of the approved grant application and other terms and conditions of the funding source.

**Note:**  
1) **Funding:** Attach information if multiple funding lines  
2) **Individual Contract Services:** Include approval form signed by all parties  
3) **ITGB:** IT project valued at \$100,000.00 or more, attach approval transmittal sheet.

**\*Contract Liaison Signature**

*\*By signing this form, I attest that all information provided is true and accurate.*

**Project Title:** Installation and Maintenance of Exelis V-MAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Vehicle Tracking Units

**Project Description:** Installation and Maintenance of Exelis V-MAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Vehicle Tracking Units

**Funding:**

Corporate     Bond     Enterprise     Grant     Other:

IDOT/Transit     IDOT/Highway     FHWA     FTA     FAA

LINE	FY	FUND	DEPT	ORGN	APPR	ACTV	PROJECT	RPTG	ESTDOLLAR AMOUNT
	20	610	85	4305	0162	0162			\$ 1,278,716
	20	740	85	4105	0440	0440			\$ 1,385,775

**Check One:**  
 **New Contract Request**

*\*By signing below, I attest the estimates provided for this contract are true and accurate.*

**\*Project / Program Manager Signature**  
*George Lyman (off)*

**\*Commissioner/Authorized Designee Signature**  
*[Signature]*

JAN 09 2020

**Purchase Order Type:**

Blanket/Purchase Order (DUR)  
 Master Consultant Agreement (Task Order)  
 Standard/One-Time Purchase

**Special Approvals Required:**

Emergency  
 Non-Competitive Review Board (NCRB)  
 Request for Individual Contract Services  
 Information Technology Governance Board (ITGB)  
 IDOT Concurrence

**Purchase Order Information:**

**Contract Term (No. of Months):** 120

**Extension Options (Rate of Recurrence):** 1 (181 days)

**Estimated Spend/Value:** \$ 2,664,491

**Procurement Method:**

Bid     RFP     RFQ     RFI  
 Small Order

**Grant Commitment / Expiration Date:**

**Pre-Bid/Submittal Conference:**  Yes     No  
 Mandatory     Site Visit

**Contract Type:**

Architect Engineering     Commodity     Construction     JOC     SBI  
 Professional Services     Revenue Generating     Vehicle & Heavy Equipment  
 Work Service     Joint Procurement     Reference Contract

**Modification or Amendment**

**Modification Information:**

**PO Start Date:** \_\_\_\_\_  
**PO End Date:** \_\_\_\_\_

**Amount (Increase/Reduction):** \_\_\_\_\_

**MBE/WBE/DBE Analysis: (Attach MBE/WBE/DBE Goal Setting Memo)**

Full Compliance     Contract Specific Goals  
 No Stated Goals     Waiver Request

**Safety Enhancing Vehicle Equipment (MCC 2-92-597) Yes \_\_\_ No \_\_\_**

**Modification/Amendment Type:**

Time Extension     Scope Change/Price Increase /Additional Line Item(s)  
 Vendor Limit Increase     Requisition Encumbrance Adjustment  
 Other (specify): \_\_\_\_\_

**Risk Management / EDS / IDOT**

**Insurance Requirements (included)**  Yes     No

**EDS Certification of Filing (included)**  Yes     No

**IDOT Concurrence (required)**  Yes     No

**Vendor Information**

**Name:** L3Harris Technologies, Inc.

**Contact:** Jessica Martell

**Address:** 2235 Monroe Street, Herndon, VA 20171

**E-mail:** Jessica.Martell@L3Harris.com

**Phone:** 571 230-8200



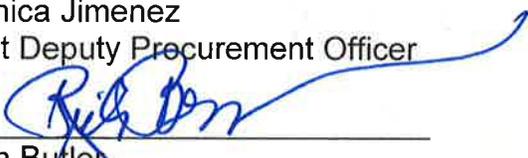
CHICAGO DEPARTMENT OF AVIATION  
CITY OF CHICAGO

To: Shannon E. Andrews  
Chief Procurement Officer

Attention: Lorel D. Blameuser  
Deputy Procurement Officer

Monica Jimenez  
First Deputy Procurement Officer

From:

  
Rich Butler  
First Deputy  
Chief Administrative Officer

Date:

JAN 09 2020

Subject: MBE/WBE Goals for Installation and Maintenance of Exelis VMAT  
Universal Access Transceiver (UAT) Automatic Dependent Surveillance-  
Broadcast (ADS-B) Vehicle Tracking Units  
Requisition Number: 317578  
Specification Number: 1193760

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The Chicago Department of Aviation (CDA) requests no stated goals be set for MBE/WBE participation for the above mentioned bid specification. This request is based on the specialized commodity nature of Installation and Maintenance of Exelis VMAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Vehicle Tracking Units and the lack of true subcontracting opportunities.

The CDA has conducted a search to identify certified MBE/WBE firms that could participate in a commercially useful manner for the above mentioned contract. CDA specifically searched for firms certified in the areas of VMAT Vehicle Tracking Units, Vehicle Transponders and Vehicle Tracking Transponders. At present, CDA has not discovered any MBE/WBE firms available that could participate on this contract. The search results are attached. The current contract, PO 30268, was awarded as no stated goals.

If you have any questions or need additional information regarding this recommendation, please contact David Bowman at (773) 686-7089.

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**Search Parameters** Edit Parameters Clear Parameters

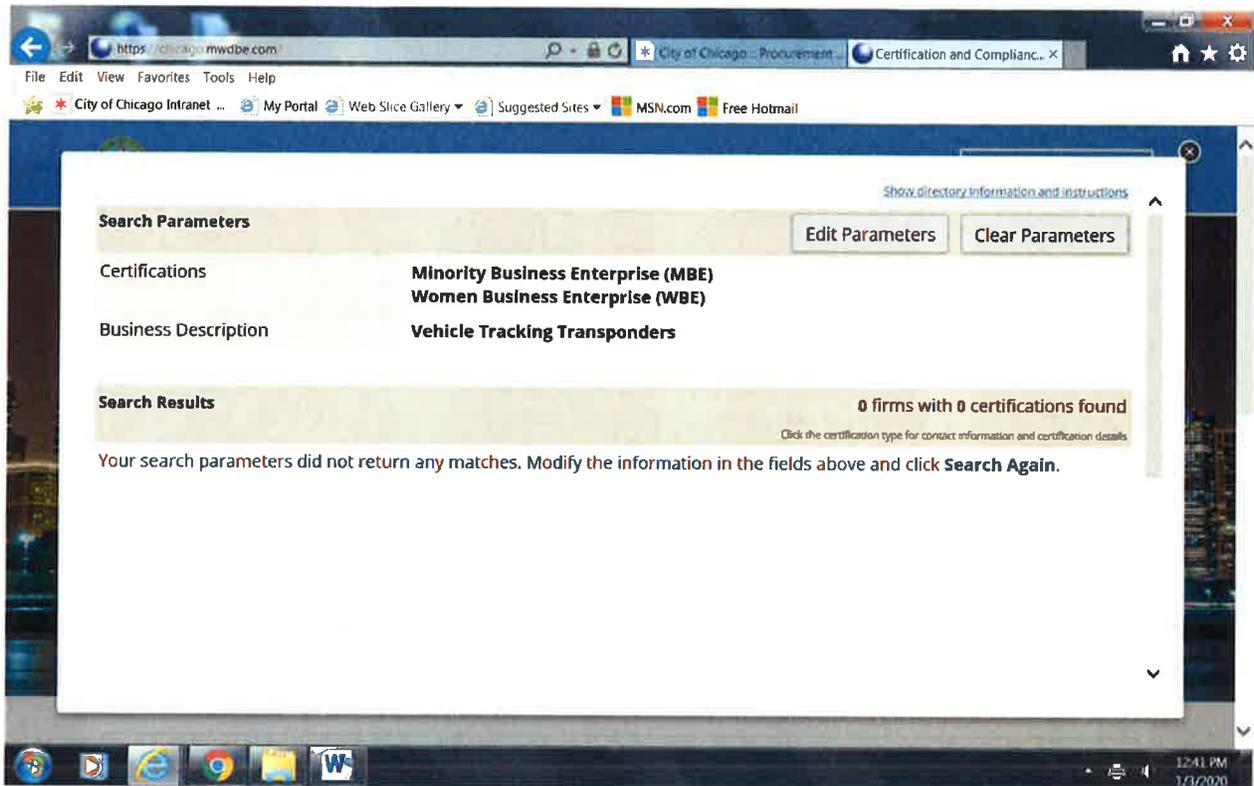
Certifications	<b>Minority Business Enterprise (MBE)</b> <b>Women Business Enterprise (WBE)</b>
Business Description	<b>Vehicle Movement Area Transmitter (VMAT) Vehicle Tracking Units</b>

**Search Results** 0 firms with 0 certifications found

Click the certification type for contact information and certification details

Your search parameters did not return any matches. Modify the information in the fields above and click **Search Again**.

12:39 PM 1/3/2020



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Show directory information and instructions

**Search Parameters** Edit Parameters Clear Parameters

Certifications	<b>Minority Business Enterprise (MBE)</b> <b>Women Business Enterprise (WBE)</b>
Business Description	<b>Vehicle Transponders</b>

**Search Results** 0 firms with 0 certifications found

Click the certification type for contact information and certification details

Your search parameters did not return any matches. Modify the information in the fields above and click **Search Again**.

12:41 PM 1/3/2020



**L3HARRIS™**

MISSION NETWORKS  
2235 Monroe Street  
Herndon, VA 20171  
phone 1-703-245-4289  
kathy.taylor@l3harris.com

January 7, 2020

City of Chicago  
O'Hare International Airport  
Midway International Airport  
Chicago, Illinois 60666

Reference: L3Harris Technologies, Inc. MBE/WBE Waiver Request for VMAT Services

To Whom it May Concern,

L3Harris Technologies, Inc. (L3Harris), previously Harris Corporation (Harris), is the sole approved FAA provider of the permanent and internally mounted Vehicle Movement Area Transponder (VMAT) devices (FDL-978-GTX/E) and associated VMAT repair services as required under FAA Advisory Circular 150/5220-26. O'Hare International Airport currently has one hundred and two (102) of these VMAT units deployed and operational at the airport, and Chicago Midway International Airport currently has seventy-seven (77) of these VMAT units deployed and operational at the airport.

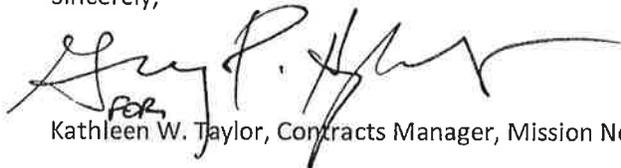
As L3Harris is FreeFlight Systems' (the VMAT manufacturer) exclusive provider/distributor of the VMAT hardware, firmware, and software included with the GTX/E unit to ASDE-X and ASSC airports throughout the United States, only L3Harris can provide the hardware repair and replacement, software, and firmware updates to the GTX/E unit as required to meet the FAA VMAT maintenance requirements. These services are only offered by L3Harris as FreeFlight Systems does not offer repair or maintenance services directly to airports or through other companies.

As this contract is for the maintenance and repair of the VMAT equipment currently owned by the City of Chicago, and L3Harris is FreeFlight's exclusive provider of hardware repair and replacement, software, and firmware updates for these units, L3Harris does not have opportunities for subcontracting out these services.

L3Harris asks that we be considered an exclusive and unique supplier solely capable of supplying service, parts and support for these VMATs. As such, we request an exemption from MBE/WBE participation.

Should you have any questions concerning this please feel free to contact me at [Kathy.Taylor@L3Harris.com](mailto:Kathy.Taylor@L3Harris.com) or 703-245-4289.

Sincerely,



Kathleen W. Taylor, Contracts Manager, Mission Networks, L3Harris



CHICAGO DEPARTMENT OF AVIATION  
CITY OF CHICAGO

**To:** Jessica Martell  
Director of Customer Relationship Management – Symphony  
Surveillance & Automation Solutions – Mission Networks  
**AVIATION SYSTEMS/L3HARRIS TECHNOLOGIES**  
t +1 571 230 8200  
[Jessica.Martell@L3Harris.com](mailto:Jessica.Martell@L3Harris.com)  
2235 Monroe Street, Herndon, VA 20171, USA

**From:** Keith Wisniewski  
General Manager Airfield Operations – O’Hare International Airport  
City Atrium  
O’Hare International Airport  
Chicago, Illinois 60666  
773-894-0162

**Subject:** Scope of work for a Proposal for a new contract for Maintenance/Support of existing Vehicle Movement Area Transponders (VMATs) Type FDL-978-GTX/E and Purchase of additional units for O’Hare and Midway Airports.

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The City of Chicago, Department of Aviation, O’Hare and Midway International Airports seeking a proposal for Maintenance and Support of the existing 179 Vehicle Movement Area Transponders (VMATs) Type FDL-978-GTX/E owned with the ability to purchase additional units.

We are seeking a 10-year (120 month) contract.

Purchase of the *Prime Plus* Operations and Support for the existing units and any additional purchased. Site Acceptance Testing (SAT) with twice a year on-site system performance testing and compliance monitoring.

**VMAT Prime Plus Operations and Support Services**

Service Name	Prime Plus Services Provided
<p><b>FAA Interface Proxy</b></p>	<p>Includes Contractor Serving as primary point of contact to the FAA for VMAT program compliance issues and remedies</p>
<p><b>VMAT Configuration Management</b></p>	<p>VMAT Configuration Management – Tracking of unit configuration and relevant installation and maintenance documents (certifications, licenses, and configuration matrix)</p>
<p><b>Seasonal Vehicle Swaps</b></p> <p><b>&amp;</b></p> <p><b>Retired/ Replacement Vehicle Swaps</b></p>	<ul style="list-style-type: none"> <li>- Contractor performs seasonal VMAT unit(s) swap outs on-site within three (3) Business Days or less upon written notification to Contractor by CDA</li> <li>- Contractor performs on-site VMAT installation on vehicles already equipped with VMAT installation kits and FAA required SAT inspection on the new installations as required</li> <li>- Contractor will provide a quote for the airport to purchase additional VMAT installation kits, as well as installation of the VMAT installation kits by Contractor, if requested</li> </ul>
<p><b>Performance and Monitor Inspections</b></p>	<p>Contractor performs two (2) On-site System Performance Testing and Compliance Monitoring Inspections each year</p>
<p><b>FAA Mandated VMAT Related Changes</b></p>	<p>Contractor provides On-site support services for any required FAA updates to the Transmit Map and VMAT Firmware</p>
<p><b>On-site VMAT Diagnostics/Repairs</b></p>	<ul style="list-style-type: none"> <li>- On-Site VMAT Troubleshooting and Repair services.</li> <li>- 3 Business day or less response time from formal written notification from CDA after CDA has verified with Contractor that there are no power related issues. Includes VMAT swap-out with airport spares if required</li> <li>- Includes any reprogramming/reconfiguration of VMATS as required</li> </ul>

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<b>Non-Warranted VMAT System Repairs</b>	<ul style="list-style-type: none"> <li>- Includes all VMAT Units in customer inventory each contract year</li> <li>- Includes up to <u>15%</u> of VMAT UAT Antennae parts each contract year</li> <li>- Does not cover repairs or replacement of units which have been deemed non-repairable</li> <li>- Does not cover repairs or replacement of GPS Antennae</li> </ul>
<b>24/7 Support Services</b>	24X7 Technical Support Desk and Trouble Ticketing Management System
<b>Symphony MobileVue Licenses</b>	One (1) MobileVue License for each Block of five (5) VMATs in customer inventory (e.g. 179 VMATS = 35 complimentary MobileVue Licenses)

**Purchase of additional VMAT units and Installation Kits**

- Internal Mount VMAT Unit with External Hard Mount Antenna
- Internal Mount VMAT Unit with External Magnetic Mount Antenna
- Extra Internal Mount VMAT Installation Kit with External Mount Antenna
- Extra Internal Mount VMAT Installation Kit with External Magnetic Mount Antenna

Please see the following for Scope of Work and Detailed Specifications:

**TERMS FOR WORK SERVICES CONTRACTS**

**The Services**

**Scope of Services**

The scope of services ("Services") is described in the Scope of Work and Detailed Specifications article of this agreement.

Unless otherwise noted, the Contractor must take out, at Contractor's own expense, all permits and licenses necessary to perform the Services in accordance with the requirements of this Contract.

**Estimated Quantities/Level of Service**

Any quantities or level of usage shown herein are estimated for the Initial Contract term. The City reserves the right to increase or decrease the quantities or level of Services required under this Contract. Nothing herein will be construed as intent on the part of the City to contract for any Services other than those determined by the City to be necessary to meet its needs.

The City will only be obligated to pay for such Services as are from time to time requested, performed, and issued via a Purchase Order release directly by the City.

**Unspecified Services**

Any service not specifically included in the Scope of Work and Detailed Specifications article may be added to this Contract if it falls within the same general category of Services already specified in the Contract. Pursuant to MCC Section 2-92-646, the lifetime, aggregate value of the City's purchase of any Services added to this Contract must not exceed ten percent (10%) of the original value of the Contract.

The Department will notify the Contractor in writing of the services which are necessary and request a written price proposal for the addition of the services to this Contract under the same terms and conditions of the original Contract, then forward the documents to the CPO. Such services may be added to the Contract only if the prices are competitive with current market prices and said services are

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approved by the CPO in writing. The CPO reserves the right to seek competitive pricing information on said services from other vendors and to solicit such services in a manner that serves the best interest of the City.

Any such services provided by the Contractor, without a written approval signed by the CPO, are done so entirely at the Contractor's risk. Consequently, in the event that such addition to the Contract is not approved by the CPO, the Contractor hereby releases the City from any liability whatsoever to pay for any services provided prior to the Contractor's receipt of the fully signed modification.

#### **Performance of the Services**

##### **Standard of Performance**

Contractor shall perform the Services with that degree of skill and care required to satisfactorily meet the requirements as set forth in the Detailed Specifications and to the satisfaction of the CPO. The Contractor will, at all times, act in the best interest of the City.

##### **Standard Working Hours**

Pursuant to MCC Section 2-92-220 a standard working day consists of 8 hours for this Contract; shifts must be coordinated with the Department. No overtime or premium pay is allowed unless otherwise specified in the Detailed Specifications and authorized by the Commissioner.

##### **Character of Workers**

The Contractor must employ only competent and efficient workers and whenever, in the opinion of the City, any such worker is careless, incompetent, violates safety or security rules, obstructs the progress of the work or services to be performed under this Contract, acts contrary to instructions or acts improperly, or fails to follow the safety requirements of this Contract, the Contractor must, upon request of the City, discharge or otherwise remove such worker from the work or services to be performed under this Contract and must not use such worker again, except with the written consent of the City. The Contractor must not permit any person to work upon the work or services to be performed under this Contract or enter into any buildings connected therewith who is under the influence of intoxicating liquors or controlled substances.

##### **Quality of Materials and Inspection**

The City will have a right to inspect any material to be used in performance of the Services for this Contract.

The City is not responsible for the availability of any materials or equipment required under this Contract.

The Contractor is responsible for the meeting the contractual obligations and standards regarding the quality of all materials, components, or services performed under this Contract up to the time of final acceptance by the City.

Non-compliant materials, components, or Services may be rejected by the CPO and must be replaced or re-performed by the Contractor at no cost to the City.

The City shall provide written notice to the Contractor indicating the time period in which Contractor must, at its sole expense, remove from City premises, any materials or components rejected by the City.

Any and all labor and materials which may be required to correct or replace damaged, defective or non-conforming products must be provided by the Contractor at no cost to the City. The Contractor must correct or replace the incorrect, damaged or defective or non-conforming goods within seven business days of the return unless otherwise provided in the Detailed Specifications. The City of Chicago will not be subject to restocking charges.

Failure to correct or replace unacceptable goods, or repeated delivery of unacceptable goods, will be an event of default under this Contract.

##### **Manufacturer's Warranty and Product Information**

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If in performance of the Services, the Contractor provides any goods, the Contractor must have, and must demonstrate upon request, that it has authorization to transfer product warranties to the City of Chicago. The Contractor is required to provide and transfer all documentation issued by the manufacturer for the products to be provided under this Contract. This includes the manufacturer's genuine parts/product information, recall notices, manuals, licenses, assemblies and/or accessories as supplied by the original equipment manufacturer (O.E.M.).

The Contractor must provide the original product warranty and related services for the goods provided under this Contract in accordance with the standard warranty regularly supplied.

**Contractor's Warranties**

If in performance of the Services, the Contractor provides any goods, the Contractor warrants that the title to the goods to be provided under this Contract is good and its transfer is rightful, and that the goods will be delivered free from any security interest or other encumbrance of which Contractor has not informed the City.

The Contractor expressly warrants that all goods shall be merchantable within the meaning of Article 2-314(2) of the Uniform Commercial Code in effect on the date they are ordered. In addition to all warranties that may be prescribed by law, the goods shall conform to specifications, drawings, and other description and shall be free from defects in materials and workmanship. Contractor also warrants that, except where the goods are produced pursuant to detailed designs furnished by the City, they will be free from defects in design. Such warranties, including warranties prescribed by law, shall run to City, its successors, assigns, customers, and to users of the goods.

At a minimum, the Contractor hereby warrants for a period of at least one year from the date of final acceptance by the City, that it will, at its own expense and without any cost to the City, replace all defective parts that may be required or made necessary by reason of defective design, material or workmanship, or by reason of non-compliance with the Contract Documents. The warranty period will commence on the first day the individual item is placed in service by the City. The City may revoke acceptance if the materials, goods, or components are later discovered not to be in conformance with this Contract.

For any construction work included in the Services, the Contractor's Warranty means the Contractor's representation as to the character and quality of the Services in accordance with the terms and conditions of the Contract Documents, and the Contractor's promise to repair and replace the work not in conformance with such representations. Without limiting the scope or duration of any Manufacturer's Warranty provided for specific parts of the work, all work furnished under this Contract is guaranteed by Contractor against defective materials and workmanship, improper installation or performance, and non-compliance with the Contract Documents for a period of one year. Unless otherwise specified, the one-year period will begin on the date of final acceptance by the Commissioner.

However, if at any time beyond the one-year Contractor's Warranty period, a latent defect in the work is discovered, the Contractor shall be responsible for re-performance, payment of damages, or such other remedy as deemed appropriate by the City.

**Correction or Re-Performance of Services**

If the Contractor has failed to properly perform the Services, upon direction in writing from the Commissioner, Contractor will promptly re-perform or correct all work or Services identified to be defective or as failing to conform to the standards set forth in the Contract Documents, whether observed before or after completion of the Services. The Contractor is responsible for all costs of correcting such defective or nonconforming Services, including costs associated with fixing any damages, re-performing the Services, and any costs required due to Contractor's inadequate performance.

**Timeliness**

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The Contractor must provide the Services in the time-frame required in the Detailed Specifications. If Contractor's response and/or completion time for performance of the Services fails to meet this standard, the CPO may declare the Contractor in default.

**Delay**

If the City has caused the Contractor to be obstructed or delayed in the commencement, prosecution or completion of the Services by any act or delay of the City or by order of the Commissioner, then the time herein fixed for the completion of said Services will be extended for an equivalent period of time.

It is otherwise understood that no extension of time will be granted to the Contractor unless Contractor, immediately upon knowledge of the causes of an unavoidable delay, first notifies the Commissioner and CPO in writing, stating the approximate expected duration of delay. Contractor shall not be entitled to an extension of time without such prior notification and request for extension.

The CPO and the Commissioner will determine the number of days, if any, that the Contractor has been delayed. Such determination when approved and authorized in writing by the Commissioner and CPO, will be final and binding.

It is further expressly understood and agreed that the Contractor shall not be entitled to any damages or compensation from the City or be reimbursed for any loss or expense on account of any delay or delays resulting from any of the causes aforesaid.

**Public Convenience**

All Services will be conducted in a manner that minimizes dust, noise, and inconvenience to the normal activities of the facility where the Services are performed. The Contractor is responsible for conducting Services in such a manner as to minimize debris left in the public way and shall provide clean-up as required by the Commissioner. Whenever the Commissioner determines any type of operation constitutes a nuisance, the Contractor will immediately proceed to conduct its operations in an approved manner.

The Commissioner may at any time require additional provisions if such are deemed necessary for public safety or convenience.

**Clean Up**

The Contractor must, during the performance of Services, remove and dispose of all materials and the resultant dirt and debris on a daily basis and keep the work site(s) and adjacent premises in a clean condition satisfactory to the City. Upon completion of work activities, the Contractor must remove all materials, tools and machinery and restore the site to the same general condition that existed prior to the commencement of its operation.

**Work Performed on City Property**

Contractor's personnel will exercise safe and sound business practices with the skill, care, and diligence normally shown by professional technicians employed in the type of Services required under this Contract.

The Contractor will employ only competent and efficient employees, and whenever, in the opinion of the Commissioner, any employee is careless, incompetent, obstructs the progress of the Services, acts contrary to instructions or conducts themselves improperly, the Contractor will, upon the request of the Commissioner, remove the employee from the premises and will not employ such employee again for the Services under this Contract, except with the written consent of the Commissioner.

The Contractor will not permit any person to enter any part of a City facility or property while under the influence of intoxicating liquors or controlled substances. The Contractor will not permit obnoxious behavior, or possession or consumption of alcoholic beverages or drugs anywhere on the site of any Services to be performed under this Contract.

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The Commissioner has authority to request the Contractor to remove any worker who proves to be incompetent or negligent in his/her duties.

If required by the Detailed Specifications, the Contractor's employees or subcontractors are required to wear suitable uniforms during the time they are on duty on any City property.

The Contractor's employees or subcontractors must wear an identification badge at all times while on duty on any City property.

The Contractor's employees must have proper identification on their person before they will be allowed on any City property.

Smoking is prohibited in all City of Chicago facilities.

The Contractor will require that all employees refrain from disturbing papers on desks, opening desk drawers or cabinets.

While on City premises, the Contractor will not store any equipment, tools or materials without prior written authorization from the Commissioner. The City will not be responsible for or liable to pay the Contractor for any loss of equipment, tools or materials stored in unsecured areas without proper authorization.

#### **Work In Progress**

Any Services in progress at the termination date of the Contract will be completed by the Contractor in the most expedient method available. In no event will the Contractor be relieved of its obligations under this Contract until all Services requested prior to the expiration of the Contract has been completed and accepted by the Commissioner.

#### **Compensation**

The Services will be provided at the prices listed on the Proposal Pages submitted with the Contractor's bid and as accepted by the City. Adjustments to prices will be as provided in the Scope of Work and Detailed Specifications, as applicable.

#### **Centralized Invoice Processing**

This Contract is subject to Centralized Invoice Processing ("CIP"). Invoices must be submitted directly to the Comptroller's office by US Postal Service mail to the following address as appropriate:

*Invoices for any City department other than the Department of Aviation:*

Invoices  
City of Chicago, Office of the City Comptroller  
121 N. LaSalle St., Room 700  
Chicago, IL 60602

*Invoices for the Department of Aviation:*

Chicago Department of Aviation  
10510 W. Zemke Blvd.  
P.O. Box 66142  
Chicago, IL 60666  
Attn: Finance Department

OR

Invoices for any department, including Aviation, may be submitted via email to: [Invoices@cityofchicago.org](mailto:Invoices@cityofchicago.org) with the word "INVOICE" in the subject line.

All invoices must be signed, marked "original," and include the following information or payment will be delayed:

- Invoice number and date
- Contract/Purchase Order number

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- Blanket Release number (If applicable)
- Vendor name and/or number
- Remittance address
- Name of City Department that ordered the goods or services
- Name and phone number of your contact at the ordering department
- Invoice quantities, commodity codes, description of deliverable(s)
- Amount due
- Receipt number (provided by the ordering department after delivery of goods/services)

Invoice quantities, service description, unit of measure, pricing and/or catalog information must correspond to the terms of the Bid Page(s).

If applicable, if invoicing Price List/Catalog Items, indicate Price List/Catalog number, Item number, Price List/Catalog date, and Price List/Catalog page number on the invoice.

Invoices for over-shipments or items with price/wage escalations will be rejected unless the Contract includes a provision for such an adjustment.

Freight, handling and shipping costs are not to be invoiced; deliveries are to be made F.O.B., City of Chicago. The City of Chicago is exempt from paying State of Illinois sales tax and Federal excise taxes on purchases.

**Clean Diesel Fleet MCC 2-92-595**

If this Contract is for construction, demolition, restoration, repair, renovation, environmental remediation or environmental abatement of any building, structure, tunnel, excavation, roadway, bridge, transit station or parcel of land and the estimated value of this Contract is \$2,000,000 or more:

- A. Contractor must comply with the Clean Diesel Contracting Ordinance, MCC Section 2-92-595.
- B. Contractor and any Subcontractor(s) must utilize Ultra Low Sulfur Diesel Fuel (ULSD) for any heavy-duty diesel-powered vehicle, non-road vehicle or non-road equipment used in the performance of the Contract.
- C. Contractor and any Subcontractor(s) must minimize idling of motor vehicles and non-road vehicles used in the performance of the Contract during periods of inactivity and must comply with the anti-idling requirements imposed by any applicable federal, state, or local law.
- D. Contractor and any Subcontractor(s), may not use any of the following vehicles and equipment in the performance of the contract:
  - (i) any heavy-duty diesel vehicle not meeting or exceeding the US EPA's emission standards for heavy-duty diesel vehicles for the 1998 engine model year, unless such vehicle is fitted with a verified diesel emission control retrofit device; or
  - (ii) any non-road vehicle or non-road equipment not meeting or exceeding the US EPA's Tier 1 Non-road Diesel Standards, unless such vehicle or equipment is fitted with a verified diesel emission control retrofit device.
- E. Any heavy-duty diesel vehicles, non-road vehicles and non-road equipment used in the performance of this Contract must incorporate such engine or retrofit technology so that the Contractor, through such engine or retrofit technology used directly by the Contractor and all subcontractors, shall have a minimum of 2.1 clean fleet score per a reporting period, as calculated by using the methodology described in MCC subsection 2-92-595(c)(5). Contractor may exclude from the calculation of the clean fleet score all of the heavy-duty diesel vehicles, non-road vehicles and non-road equipment used in the performance of the contract during a reporting period that are owned or leased by any firm that the CPO has granted a clean fleet score annual waiver certificate pursuant to MCC subsection 2-92-595 (f).
- F. The City may conduct an audit of the Contractor or inspect any vehicle or equipment used in the performance of the Contract to ensure compliance with the requirements specified above. In the event that Contractor or any Subcontractor fails to utilize ULSD or fails to minimize idling or comply with anti-idling requirements, Contractor will be subject to liquidated damages of \$5,000 per day for each violation and each

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day of noncompliance will be a separate violation; provided, however, the damages will not exceed \$50,000 for any one vehicle or piece of equipment, as specified in MCC Section 2-92-595(e). Such liquidated damages are imposed not as a penalty but as an estimate of the damages that the City will sustain from delay in completion of the project and inspection and other enforcement costs, as well as the resultant damages to the public health of its citizens, which damages by their nature are not capable of precise proof. The City is authorized to withhold and deduct from monies otherwise payable to the contractor the amount of liquidated damages due to the City.

Contractor understands that pursuant to MCC subsection 2-92-595(e)(6), any person knowingly making a false statement of material fact to any City department with respect to compliance with the contract provisions specified in MCC subsection 2-92-595(e) Chicago may be fined not less than \$1,000 or more than \$5,000 for each statement.

**Multi Project Labor Agreement (PLA)**

The City has entered into the PLA with various trades regarding projects involving construction, demolition, maintenance, rehabilitation, and/or renovation work, as described in the PLA, a copy of which may be found on the City's website at: <http://www.cityofchicago.org/dam/city/depts/dps/RulesRegulations/Multi-ProjectLaborAgreement-PLAandSignatoryUnions.pdf>.

To the extent that this Contract involves a project that is subject to the PLA, Contractor acknowledges familiarity with the requirements of the PLA and its applicability to any Work under this Contract and shall comply in all respects with the PLA.

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**SCOPE OF WORK AND DETAILED SPECIFICATIONS**

**General**

This Contract is for the Installation and Maintenance of V-MAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Vehicle Tracking Units, Type FDI-978-GTX/E.

This description is intended to be general in nature and is neither a complete description nor a limitation on the products and services that Contractor is to provide under this Contract.

**Funding**

The source of funds for payments under this Contract is Fund Operations & Maintenance (O&M) funding annually number 0740-085-4.105-0440-0440. Payments under this Agreement must not exceed \$2,665,000.00 without a written amendment in accordance with the Amendments section of the "Standard Terms and Conditions" above. Funding for this Contract is subject to the availability of funds and their appropriation by the City Council of the City.

**Pricing**

Contractor's pricing will incorporate any/all peripheral costs including, but not limited to the costs of products and/or services, delivery/transportation charges, training, materials, labor, insurance, applicable taxes, warranty, overhead and profit, etc. that are required by this Contract.

**Notices**

Notices to the City and Contractor will be as provided in the Standard Terms and Conditions. Notices to Contractor will be sent care of the name and to the address listed below:

If to the City: Deputy Commissioner of Airfield Operations  
O'Hare International Airport  
P.O. Box 66142  
Chicago, IL 60666

With Copies to: Chief Procurement Officer  
City Hall, Room 806  
121 North LaSalle Street  
Chicago, IL 60602

If to the Contractor: Kathleen W. Taylor  
Contracts Manager  
L3Harris Technologies, Inc.  
2235 Monroe Street  
Herndon, VA 20171

**Contract Term**

The Term for this Contract will be one-hundred twenty (120) months, unless terminated earlier pursuant to the Termination provision, or extended according to the terms of the Contract Extension Option provision in the Standard Terms and Conditions section of this Contract.

The City will establish the start and expiration dates at the time of formal award and release of this contract.

The start date will be no later than the first day of the succeeding month from the date shown as the Contract Award and Release Date on the Proposal Acceptance Page.

**Authorized Dealer**

The Contractor must be the manufacturer of, or an authorized dealer or distributor of the manufacturer of, the Exells VMAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance Broadcast (ADS-B) Vehicle Tracking Units. The Contractor must be able to provide genuine parts, assemblies and/or accessories as supplied by the original equipment manufacturer (OEM). Further, the Contractor must be able to provide original product warranty and manufacturer's related services such as product information, product recall notices, etc.

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Documentation which validates the Contractor's current status of authorized dealer or distributor must be submitted with the bid. Contractor must also demonstrate that it has authorization to transfer product warranties to the City of Chicago.

#### **Detailed Specifications**

##### **Scope**

According to the Federal Aviation Administration (FAA), potentially serious incidents and accidents involving aircraft and vehicles at airports occur every year. In late 2011, the FAA released Advisory Circular (AC) No. 150-5220-26 to provide guidance on the Installation of Airport Ground Vehicle Automatic Dependent Surveillance – Broadcast (ADS-B) Out Squitter Equipment for airport ground vehicles, in order to "provide improved surveillance in the terminal, en route, and on surface environments." The AC states that "the FAA strongly encourages airport operators to voluntarily equip appropriate vehicles with airport ground vehicle ADS-B squitter units." Both O'Hare and Midway International Airports are among the 44 airports identified in the AC as primary locations for installation by 2017.

The Chicago Department of Aviation (CDA) desires to contract for the Maintenance and Service of the existing 179 Vehicle Movement Area Transponders (VMATs) Type FDL-978-GTX/E owned and the ability to purchase additional units, up to (73) for O'Hare International Airport and (98) for Midway International Airport. Including installation kits for vehicles that are retired/decommissioned and reprogramming of the unit to be used in a new vehicle.

##### **Hardware/Software**

Contractor shall provide CDA with the following hardware, software, and support

- Installation, training and verification as described below
- Two-year hardware warranty from site acceptance date

Payment for HARDWARE/SOFTWARE shall be on a per-unit basis for delivered VMAT units, including installation kits and two-year hardware warranty.

##### **FCC/FAA Transmit Approval**

CDA shall be responsible for obtaining approval from the Federal Communications Commission (FCC) for transmission of VMAT signals. Contractor shall assist by coordination with the Federal Aviation Administration Service Area Frequency Management Office (FMO), obtaining a Non-Governmental (NG) Transmit Number (NG Txxxxx) from the FAA Service Area (or Regional) FMO, and applying to the FCC for a license to transmit.

Contractor shall assist CDA as necessary to obtain International Civil Aviation Organization (ICAO) addresses from the FAA for each of the VMAT units. Contractor shall draft a letter to be sent from CDA to obtain ICAO addresses.

##### **Pre-Installation and Training**

Once approval has been received and the FAA has provisioned International Civil Aviation Organization (ICAO) addresses, Contractor shall deliver all installation kits, conduct on-site installation kit training, and oversee CDA's installation of the first five installation kits.

During the Pre-Installation phase, two parallel sets of activities occur:

**Installation Kit Installation** – Following the training period, CDA will prepare the vehicles by installing mounting brackets for the VMAT units, Global Positioning System (GPS) and Universal Access Transceiver (UAT) antennas, appropriate gauge wire for tapping into accessory power, and appropriate gauge wire and lengths to properly conceal and run to antenna sources. The configuration matrix for

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these vehicles will be reviewed and changes made accordingly. Vehicle Installation kits shall include all brackets, antennas, connectors, and cabling required except for the electrical wiring required for tapping into the vehicle power source. After the initial set of five (5) Installation kits have been installed with guidance from Contractor personnel, CDA shall install the remainder of the installation kits in the selected vehicles.

**Data Collection and VMAT Configuration** - Contractor will work with CDA to collect information regarding the vehicles that are to be outfitted with a VMAT unit. For each vehicle, the following information will be collected for planning and configuration purposes:

- Vehicle name / description
- Vehicle type
- Vehicle tag
- Emitter category
- Vehicle length and width (meters)
- Vehicle ID/call sign

A transmit map of the airport surface shall be used to control the on/off function of the vehicle unit. Contractor will provide CDA with copies of a .kml formatted map received from the FAA. The map will be loaded on the VMAT units during the configuration phase and copies of the map shall be retained for configuration management.

#### **Installation**

Contractor will provide configuration management services for each VMAT device based on serial number, provisioned ICAO address, vehicle designator, and vehicle tag. These details will be tracked using the configuration matrix. Contractor will update and complete the configuration matrix for the units installed, if required, and confirm that the correct VMAT devices are deployed in the intended vehicles through a review of the configuration label on the front of the unit.

At a minimum, the following information will be tracked in the matrix:

- Vehicle description
- Vehicle tag
- Vehicle ID
- VMAT serial number
- ICAO address
- Link frequency
- Airport VMAT transmit map date and checksum
- Emitter category
- Vehicle length (meters)
- Vehicle width (meters)
- Configure date/initials
- Installation date/initials
- Acceptance test verification date/initials

Dated copies of the updated configuration matrix will be provided to the FAA and CDA as changes are made. This information shall be kept online by Contractor for reference. Contractor will provide the FAA with copies of the validated matrix according to the site acceptance procedures.

Contractor shall be required, in accordance with Advisory Circular 150/5220-26, to manage the site acceptance testing (SAT) process and submit SAT documents and updates to the FAA's Quality Reliability Officer (QRO) or the QRO's representative. Other than for installation and testing purposes, units may not be used operationally without passing SAT testing or receiving provisional acceptance.

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After the initial lot installation, Contractor will submit an updated preliminary SAT report for all devices that have been installed and have had their configuration verified. The FAA will review the preliminary SAT report and determine if any corrective actions are required or grant provisional operational use of the installed units listed in the report. The FAA has agreed to allow units to operate with provisional acceptance for up to six (6) months.

Contractor will work with CDA to test three vehicles with installed and configured VMAT units on their ability to transmit. The units will be selected for their ability to practically travel to the various regions of defined in the map required for testing. The units will be configured with the current FAA provided .kml map. The results of this test will be used to satisfy these requirements for all other VMAT units with the same part number and which have had loaded the same map. The .kml airport transmit maps will be considered the same if they have the identical checksum, date, and number of zones. Contractor will be responsible for verifying performance.

#### **Annual Maintenance**

Once the SAT final report has been submitted to the FAA and accepted, the first annual maintenance period shall begin, with subsequent annual maintenance periods commencing on the anniversary thereafter. Payment for ANNUAL MAINTENANCE shall be on a lump sum basis for all installed units, payable at commencement of the maintenance period and annually thereafter with three percent (3%) annual escalation.

As long as the VMAT units are deployed, Contractor is responsible for ensuring that the units are operating properly, and that the paperwork is in order. Ongoing support is required on every installed unit, whether under warranty or not, unless a unit has been decommissioned and removed. The City will need to maintain a contract for maintenance as long as the VMAT units are deployed.

During this period, CDA personnel will have access to a support hotline and trouble ticket portal to report any issues that may arise and get status on any outstanding items. In addition to a support desk function, the support and maintenance phase includes services outlined in FAA Advisory Circular No. 150/5220-26 such as:

- Shipping of warranty replacement VMAT if defective unit is detected or identified by FAA as such
- Recertification/documentation of new VMAT unit in the event of a warranty replacement or repair
- Tracking of unit configuration and relevant installation and maintenance documents (certifications, licenses, and configuration matrix)

Contractor shall maintain a customer support website that will maintain current unit configurations, copies of required certifications and licenses, and relevant installation documents, and allow CDA to submit and track issues and defects.

Issues will be registered with Contractor through the customer support website or by contacting the Contractor support office. Issues registered with support will be triaged and processed through the customer support website. All issues will be assigned and tracked with a unique ticket number. This data will be used to help determine transient vs. system issues and will be used as an input in overall product improvement. The support office will coordinate with the required resources to mitigate issues that are entered into the system. Contractor will respond within two (2) working days to any issues reported through the website or telephone hotline and employ commercially reasonable practices to resolve issues.

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In accordance with Advisory Circular 150/5220-26, Contractor shall maintain the configuration matrix and all SAT materials. Changes to any item tracked in the matrix shall be communicated to Contractor so it can notify the FAA accordingly. Contractor will keep records of the current configuration state and a history of changes in its online support system.

Contractor will coordinate replacement of units determined to be defective in accordance with CDA's warranty and support agreement. Defective units covered under the manufacturer's warranty shall be repaired or replaced in accordance with the terms of the warranty and support agreement. Contractor will work with CDA to replace each unit, update the configuration matrix, and coordinate with the FAA accordingly to submit and process an amendment to the SAT. Units identified as defective shall not be used operationally. CDA will contact Contractor to obtain a shipping label and coordinate the shipment of the defective unit(s). Replacement units for any defective units returned to Contractor support offices shall be shipped within five (5) business days.

Defective units covered under the Prime Plus O&S Plan will be repaired according to the terms of the O&S Plan and support agreement. CDA must contact Contractor to obtain a shipping label and coordinate the shipment. CDA will return the defective unit to the Contractor's support office. Contractor will assess the unit's condition and reparability. If the unit can be repaired, the unit will be repaired and shipped back to CDA. If the unit is not able to be repaired, CDA will need to purchase a new VMAT unit if they desire a replacement.

If VMAT device model #FDL-978-GTX/E becomes unrepairable or unsupported as deemed by Contractor during this 10-year contract, CDA will be responsible for the purchase and install of a replacement unit and installation kit, which may be any VMAT model sold by Contractor and approved in the latest FAA advisory circular. Pricing for the purchase, installation and support of any new model VMAT units will be presented to CDA for consideration and will be mutually agreed upon in a contract amendment. Upon installation, Contractor will maintain the units under this contract for the remaining duration of the contract term.

In the event the airport transmission map is updated, the new maps shall be uploaded individually to each VMAT unit, and Contractor will submit an amended SAT report. The VMAT with the new map will continue to operate in a provisional state for up to six months until the amended SAT report is approved.

Contractor shall be responsible at all times for ensuring that the VMAT units are operating properly and documentation is current and complete in order to maintain support on each installed unit, whether under warranty or not, unless decommissioned and removed by CDA.

#### **Unit Transfers**

If CDA determines a need to transfer a unit to another vehicle after final acceptance by FAA, Contractor shall update the configuration matrix and submit an amended SAT report with the updated information to the FAA for approval. The relocated unit will continue to operate in a provisional state for up to two months until the amended SAT report is approved. Activities related to support of VMAT transfers to vehicles already equipped with VMAT installation kits by CDA shall be included in ANNUAL MAINTENANCE. If VMAT installation kits are relocated, warranty/support coverage on the kit(s) is forfeited.

#### **FAA Updates**

The FAA may monitor units for operational compliance and may report issues to either CDA or Contractor. CDA will report to Contractor any issues raised by FAA, and any issues reported to Contractor by FAA shall be reported to CDA. Once an issue has been raised, appropriate investigation and mitigation, if required, shall be performed by Contractor upon direction and approval of CDA.

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At any time, the possibility exists that the FAA may require or recommend that installed VMAT units be updated. Should updates be required by the FAA, Contractor shall coordinate with the FAA to determine the process for applying an update.

Contractor will communicate to CDA the details of the update and any actions they must take. If determined to be required, updating of the units shall be included in ANNUAL MAINTENANCE.

#### **Warranty**

All VMAT units shall be covered under manufacturer's two-year hardware warranty and included in the price for HARDWARE/SOFTWARE. Defective units covered under the manufacturer's warranty will be repaired or replaced in accordance with the terms of the warranty. CDA will return the defective unit to Contractor's support office. Within 5 business days, Contractor will ship a replacement unit to the Airport. Contractor will replace each unit, update the configuration matrix, and coordinate with the FAA accordingly to submit and process an amendment to the SAT.

The following items are not included in Contractor supplied maintenance and support services:

1. Replacement of consumable items.
2. Repair or replacement of equipment under warranty maintenance damaged by vandalism, accident, fire, riot, civil disturbance or acts of war.
3. Repair or replacement of equipment damaged by acts of God, including, but not limited to, lightning strikes, flood, unusually severe weather or other acts of nature.
4. Repair or replacement of equipment under maintenance damaged by modifications or adjustments made by CDA personnel and not authorized by Contractor or not performed under Contractor's supervision and direction.
5. Repair or replacement of equipment under maintenance damaged by operation in an unsuitable environment such as inadequate air conditioning, humidity control, or faulty electric power.
6. Repair or replacement of equipment under maintenance damaged by relocation of equipment not performed by Contractor or under Contractor's supervision and direction.
7. Problems caused by faulty power including sags and surges.
8. Contractor will use commercially reasonable efforts to provide the CDA with six (6) months prior notice to the End of Life (EOL) for any equipment. Once equipment has reached EOL, Contractor shall no longer be responsible for maintaining such equipment, nor shall Contractor have any responsibility to replace the equipment at its own expense. After equipment has reached EOL, Contractor will identify options for CDA to replace the equipment.

#### **Non-Warranty Service**

For units no longer covered by warranty or service agreement, or repairs/replacements due to reasons specifically excluded from the manufacturer's warranty and/or Contractor's support agreement, service will be handled on a time and materials basis based on approved labor rates for year one (1) with three percent (3%) annual escalation. Contractor shall provide a quote for the repair and processing of any defective units prior to conducting any repair or replacement.

#### **Extra Installation**

Extra vehicle installation kits which allow VMAT units to be moved easily between vehicles at the same Airport may be purchased at CDA's option. Payment for EXTRA INSTALLATION KITS shall be on a per-unit basis based on year one (1) pricing with three percent (3%) annual escalation thereafter.

#### **MobileVue Licenses**

Under Prime Plus O&S Services, CDA will receive up to thirty-five (35) Symphony® MobileVue™ licenses. Additional licenses may be purchased by CDA during the term of the ten (10) year maintenance period for use at O'Hare or Midway.

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Symphony MobileVue is a situation awareness display system that displays real-time aircraft and vehicle surveillance data on a portable device. Symphony MobileVue puts real-time surveillance data in the hands of the people who are operating on the surface of an airport, providing significant improvements in safety and efficiency. MobileVue enables airfield operations staff to have real-time access to surveillance and taxi-time information on a portable device. MobileVue provides airport operators with a depiction of their location in relation to aircraft and other vehicles operating around and on the airport surface.

MobileVue is licensed on a per-device annual subscription. Payment for MOBILEVUE LICENSES shall be on a per-unit basis depending on lot size ordered and based on year one (1) pricing with three percent (3%) annual escalation thereafter.

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MISSION NETWORKS  
2235 Monroe Street  
Herndon, VA 20171  
phone 1-703-245-4289  
kathy.taylor@L3Harris.com

November 25, 2019

Mr. Keith Wisniewski  
General Manager Airfield Operations  
O'Hare International Airport  
Sent via E-mail: [keith.wisniewski@citychicago.org](mailto:keith.wisniewski@citychicago.org)

REF: Sole Source Justification – VMATs & VMAT Repair Services

Dear Mr. Wisniewski:

This letter is to confirm that L3Harris Technologies Inc. (L3Harris) is the only approved FAA provider of the permanent and internally mounted VMAT devices (FDL-978-GTX/E) and associated VMAT repair services as required under FAA Advisory Circular 150/ 5220-26. O'Hare International Airport currently has one hundred and two (102) of these VMAT units deployed and operational at the airport, and Chicago Midway International Airport currently has seventy-seven (77) of these VMAT units deployed and operational at the airport.

Should you have any additional questions or need additional information, please do not hesitate to contact me. Thank you for the opportunity to earn your business.

Sincerely,

A handwritten signature in blue ink that reads "Kathleen W. Taylor".

Kathleen W. Taylor  
Contracts Manager  
Mission Networks  
L3Harris

cc: Jessica Martell, Symphony CRM Director, Surveillance & Automation Solutions (SAS),  
L3Harris  
Chris Zanardi, Symphony General Manager, SAS, L3Harris



2235 Monroe Street  
Herndon, VA 20171  
phone 1-703-245-4289  
[Kathy.Taylor@L3Harris.com](mailto:Kathy.Taylor@L3Harris.com)  
L3Harris.com

July 1, 2019

VIA: email

Subject: Name Change: Notification of Harris Corporation merger into L3Harris Technologies, Inc.

To Whom It May Concern:

Effective October 14, 2018 Harris Corporation (Harris) and L3 Technologies, Inc. (L3) announced a definitive agreement for Harris to combine in an all stock merger of equals. The merger was completed on June 30, 2019. As a result of the merger the combined company is named L3Harris Technologies, Inc. (L3Harris).

In consideration of the merger, we would like to request that our name be changed from Harris Corporation to L3Harris Technologies, Inc. (L3Harris). Attached is a copy of a L3Harris W-9. Also, please use the following addresses for notices and payment moving forward:

**Notices**

L3Harris Corporation  
Attn: Kathy Taylor, Contracts Manager  
2235 Monroe Street  
Herndon, VA 20171  
[Kathy.Taylor@L3Harris.com](mailto:Kathy.Taylor@L3Harris.com)

**Payment (information remains the same as Harris)**

**ACH or Wire Transfer:**

L3Harris Technologies, Inc.  
Bank of America Merrill Lynch  
222 Broadway  
New York, NY 10038

Account number: 4451124214  
Routing number ACH/EFT: 111000012  
Routing number Domestic Wire: 026009593  
SWIFT Code: BOFAUS3N

**Pay by Check:**

**Lockbox**

L3Harris Technologies, Inc.  
PO Box 419425  
Boston, MA 02241-9425

Should you have any questions or concerns, please contact me at 703-245-4289 or [Kathy.Taylor@L3Harris.com](mailto:Kathy.Taylor@L3Harris.com)

Sincerely,

A handwritten signature in blue ink that reads "Kathleen W. Taylor".

Kathleen W. Taylor  
Contracts Manager

## Request for Taxpayer Identification Number and Certification

Give Form to the  
requester. Do not  
send to the IRS.

▶ Go to [www.irs.gov/FormW9](http://www.irs.gov/FormW9) for instructions and the latest information.

Print or type.  
See Specific Instructions on page 3.

<b>1 Name (as shown on your income tax return).</b> Name is required on this line; do not leave this line blank. <b>L3Harris Technologies, Inc.</b>	
<b>2 Business name/disregarded entity name, if different from above</b> 	
<b>3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.</b> <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input checked="" type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate  <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____ <small>Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.</small>  <input type="checkbox"/> Other (see instructions) ▶ _____	<b>4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):</b>  Exempt payee code (if any) <u>5</u>  Exemption from FATCA reporting code (if any) <u>D</u>  <small>(Applies to accounts maintained outside the U.S.)</small>
<b>5 Address (number, street, and apt. or suite no.) See instructions.</b> <b>1025 West Nasa Blvd, MS: A-12</b>	<b>Requester's name and address (optional)</b> 
<b>6 City, state, and ZIP code</b> <b>Melbourne, FL 32919</b>	
<b>7 List account number(s) here (optional)</b> 	

### Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

**Note:** If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number									
or									
Employer identification number									
3	4	-	0	2	7	6	8	6	0

### Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

<b>Sign Here</b>	Signature of U.S. person ▶	Date ▶
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## General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

**Future developments.** For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to [www.irs.gov/FormW9](http://www.irs.gov/FormW9).

### Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

*If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.*



# **Proposal for Symphony<sup>®</sup> Vehicle Movement Area Transponders (VMATs), VMAT Operation and Support Services & Symphony MobileVue**

Submitted to:  
Keith Wisniewski  
General Manager Airfield Operations  
O'Hare International Airport

Submitted by:  
L3Harris  
Technologies, Inc.  
2235 Monroe Street  
Herndon, Virginia 20171

February 7, 2020

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L3HARRIS CONFIDENTIAL/PROPRIETARY - This information is provided solely for the recipient's use in evaluating L3Harris for award of the services/supplies stated herein. Recipient shall not disclose or otherwise use the information contained herein without the express written consent of L3Harris.



**INTRODUCTION**

L3Harris Technologies (“L3Harris”) is pleased to submit this proposal to supply the City of Chicago, Department of Aviation (“The City” or “CDA”) with the following ongoing services:

1. *Prime Plus Operations and Support Services* for 179 Symphony® Vehicle Movement Area Transponder (VMAT) units currently installed at Chicago Midway International Airport (MDW) and Chicago O’Hare International Airport (ORD) as required for the continued operation of these units as described in Federal Aviation Administration (FAA) Advisory Circular No. 150/5220-26.
2. Complimentary licensing and support services for Symphony® MobileVue.
3. Additional Symphony VMAT unit hardware purchase options, including licensing, verification, installation and ongoing support required for the continued operation of these units as described FAA Advisory Circular No. 150/5220-26.

**VMAT PRIME PLUS OPERATIONS and SUPPORT SERVICES**

The following section describes the services provided with the L3Harris VMAT Prime Plus Operations and Support (O&S) services.

**Prime Plus O&S Service Plan Features**

Service Name	Prime Plus Services Provided
<b>FAA Interface Proxy</b>	Includes L3Harris Serving as primary point of contact to the FAA for VMAT program compliance issues and remedies
<b>VMAT Configuration Management</b>	VMAT Configuration Management – Tracking of unit configuration and relevant installation and maintenance documents (certifications, licenses, and configuration matrix)
<p><b>Seasonal Vehicle Swaps</b></p> <p style="text-align: center;"><b>&amp;</b></p> <p style="text-align: center;"><b>Retired/ Replacement Vehicle Swaps</b></p>	<ul style="list-style-type: none"> <li>- L3Harris performs seasonal VMAT unit(s) swap outs on-site within <b>three (3) Business Days or less upon written notification to L3Harris by the City</b></li> <li>- L3Harris performs on-site VMAT installation on vehicles already equipped with VMAT installation kits and FAA required SAT inspection on the new installations as required</li> <li>- L3Harris will provide a quote for the airport to purchase additional VMAT installation kits, as well as installation of the VMAT installation kits by L3Harris, if requested</li> </ul>

<b>Performance and Monitor Inspections</b>	L3Harris performs two (2) On-site System Performance Testing and Compliance Monitoring Inspections each year
<b>FAA Mandated VMAT Related Changes</b>	L3Harris provides On-site support services for any required FAA updates to the Transmit Map and VMAT Firmware
<b>On-site VMAT Diagnostics/Repairs</b>	<ul style="list-style-type: none"> <li>- On-Site VMAT Troubleshooting and Repair services.</li> <li>- 3 Business day or less response time from formal written notification from the City after the City has verified with L3Harris that there are no power related issues. Includes VMAT swap out with airport spares if required</li> <li>- Includes any reprogramming/reconfiguration of VMATS as required</li> </ul>
<b>Non-Warrantied VMAT System Repairs</b>	<ul style="list-style-type: none"> <li>- Includes <b>all VMAT Units in customer inventory</b> each contract year</li> <li>- Includes <b>up to 15% of VMAT UAT Antennae</b> parts each contract year</li> <li>- Does not cover repairs or replacement of units which have been deemed non-repairable by the VMAT Original Equipment Manufacturer (OEM)</li> <li>- Does not cover repairs or replacement of GPS Antennae</li> </ul>
<b>24/7 Support Services</b>	24X7 Technical Support Desk and Trouble Ticketing Management System
<b>Symphony MobileVue Licenses</b>	One (1) MobileVue License for each Block of five (5) VMATs in customer inventory (e.g. 179 VMATS = 35 complimentary MobileVue Licenses)
<b>Symphony OpsVue License Discount</b>	50% Discount Off Symphony OpsVue Licenses

**PROGRAM DETAILS**

VMAT warranties and the Operations & Support (O&S) Service Plan begin upon VMAT Site Acceptance Testing (SAT) or within ninety (90) days of receipt of the VMATs by the airport, whichever occurs first. On-site VMAT O&S Services and remote repairs and reprogramming will be performed Monday through Friday, excluding holidays.

**ISSUE RESOLUTION & TRACKING**

L3Harris will provide support and maintenance for all units according to this support agreement. L3Harris maintains a customer support portal that allows Licensee to submit and track issues and defects. Additionally, the support database will maintain current unit configurations, copies of required certifications and licenses, and relevant installation documents.



Issues will be registered with L3Harris through the customer support portal or by contacting the Symphony support office. Issues registered with support will be triaged and processed through the customer support portal. All issues will be assigned and tracked with a unique ticket number. This data will be used to help determine transient vs. system issues and will be used as an input in overall product improvement. The support office will coordinate with the required resources to mitigate issues that are entered into the system.

### CONFIGURATION MANAGEMENT

In accordance with Advisory Circular 150/5220-26, L3Harris will maintain the configuration matrix and all SAT Changes to any item tracked in the matrix, must be communicated to L3Harris support so they can notify the FAA accordingly. L3Harris will keep records of the current configuration state and a history or changes in its online support system.

### UNIT REPLACEMENT

L3Harris will coordinate replacement of units determined to be defective in accordance to this warranty and support agreement. If shipping is covered by L3Harris, the airport must contact L3Harris to obtain a shipping label and coordinate the shipment. Under no circumstances, once a unit has been identified to be defective, should it be used operationally.

#### Units Under Warranty

Defective units covered under warranty will be repaired or replaced in accordance with the terms of this warranty and support agreement. Each unit comes with an initial 2-year manufacturer's warranty that begins upon VMAT SAT or within ninety (90) days of receipt of the VMATs by the Airport, whichever occurs first. The airport must contact L3Harris to obtain a shipping label and coordinate the shipment of the defective unit back to L3Harris. The customer will return the defective unit to the L3Harris support office and within 5 business days, L3Harris will ship a replacement unit to Licensee.

L3Harris will work with Licensee remotely to replace each unit, update the configuration matrix, and coordinate with the FAA accordingly to submit and process an amendment to the SAT.

#### Units Covered by Prime Plus O&S Plan

Defective units covered under the Prime Plus O&S Plan will be repaired according to the terms of the O&S Plan and support agreement. The airport must contact L3Harris to obtain a shipping label and coordinate the shipment. The customer will return the defective unit to the L3Harris support office. L3Harris will assess the unit's condition and reparability. If the unit can be repaired, the unit will be repaired and shipped back to the customer. If the unit is not able to be repaired, the customer will need to purchase a new VMAT unit if they desire a replacement.

### UPDATING UNITS

While it is anticipated that the VMATs' configuration is stable, the possibility exists that the FAA may require or recommend the installed units be updated. Since the details of any particular update are not known at this time, the process and details of what is required will be handled on a case-by-case basis. L3Harris will coordinate the FAA to determine the process for applying an update. L3Harris will communicate to Licensee the details of the update and any actions they must take. On-site support services for any required FAA updates to VMAT Firmware is covered under the Prime Plus Operations and Support Services Programs.



### **MAINTAINING SAT REPORT**

In accordance with Advisory Circular 150/5220-26, L3Harris will maintain the configuration matrix and all SAT materials. L3Harris will coordinate with Licensee and the FAA to maintain the SAT documents. This is included in the annual O&S plan.

### **FAA COMPLIANCE MONITORING**

The FAA will monitor units for operational compliance and may report issues to either Licensee or L3Harris. Once an issue has been raised the unit will be triaged and may be deemed defective and require some mitigation. L3Harris will serve as the primary point of contact to the FAA for VMAT program compliance issues and remedies.

### **On-Site System Performance Testing and Compliance Monitoring**

L3Harris will provide twice a year on-site system performance testing and compliance monitoring. These trip(s) will be coordinated to occur at the same time as any seasonal VMAT unit transfer trips under the Prime Plus O&S plan.

### **UNIT TRANSFER TO ANOTHER VEHICLE**

The FAA allows for seasonal transfers to other vehicles. Once Licensee has received Final Acceptance and there is a need to transfer a unit to another vehicle, the configuration matrix must be updated, the unit must be verified, and L3Harris will submit an amended SAT report with the updated information to the FAA for approval. The relocated unit will continue to operate in a provisional state for up to two months until the amended SAT report is approved.

Activities related to support for VMAT transfer between vehicles already equipped with installation kits are included in the Prime Plus Operations and Support Services Program. Swaps will be performed according to the terms of the Prime Plus O&S plan. If the VMAT installation kit is moved to another vehicle after initial installation, the warranty of the installation kit becomes null and void. Therefore, if the installation kit is damaged or breaks after the installation kit has been transferred to another vehicle, the airport would be solely responsible for any repair or replacement charges. The airport must follow all installation and maintenance requirements as set forth in FAA Advisory Circular No. 150/5220-26.

### **SITE ACCEPTANCE TESTING (SAT)**

Other than for installation and testing purposes, units cannot be used operationally without passing SAT testing or receiving provisional acceptance. Once all VMAT units have been installed, a SAT must take place in accordance with FAA Advisory Circular No. 150/5220-26. Harris is required, in accordance with Advisory Circular 150/5220-26, to manage the acceptance testing process and submit SAT documents and updates to the FAA's Quality Reliability Officer (QRO) or the QRO's representative. Harris will travel to the airport to conduct this testing.

### **UPDATES TO THE MAP**

In the event the VMAT airport transmit map is updated, the new maps must be uploaded individually to each VMAT, and L3Harris will submit an amended SAT report. The VMAT with the new map will continue to operate in a provisional state for up to six months until the amended SAT report is approved. Map updates are included in the Prime Plus O&S plan.



## SYMPHONY MOBILEVUE

### OVERVIEW

*Symphony MobileVue* is a situation awareness display system that displays real-time aircraft and vehicle surveillance data on a portable device. *Symphony MobileVue* puts real-time surveillance data in the hands of the people who are actually operating on the surface of an airport, providing significant improvements in safety and efficiency.

*MobileVue* enables airfield operations staff to have real-time access to surveillance and taxi-time information on a portable device. Airfield operations staff are able to manage their activities (Part 139 inspections, maintenance, snow removal, towing operations, etc.) based on what is actually happening on the airfield, and with coverage of approaching aircraft. For emergency operations, Incident Commanders and other emergency responders can effectively respond and manage emergency operations in the field, with all responders able to view the same real-time situation awareness display.

With airport vehicles equipped with VMATs, *MobileVue* will enhance safety and efficiency in movement and non-movement areas by providing airport operators with a depiction of their location in relation to aircraft and other vehicles operating around and on the airport surface.

### FEATURES:

- Simple, familiar hardware and display interface
- Supports zoom, pan and centering operations
- User configurable information display
- Displays aircraft taxi-times for DOT compliance monitoring
- Easy to install and update wirelessly
- User selectable background maps and colors

### LICENSING & SUPPORT

Under L3Harris' enhanced Prime Plus VMAT Operations & Support Services plan, The City will receive up to 35 complimentary licenses of Symphony MobileVue.

### PRICING

This proposal contains firm-fixed pricing based on a 10-year renewal from May 10, 2020 through May 9, 2030. A 181-day extension period is allowed at the same rate quoted for the contract year beginning in 2029. Pricing is based on the purchase, installation, maintenance and repair of VMAT devices model #FDL-978- GTX/E. If VMAT device model #FDL-978-GTX/E become unrepairable or unsupported as deemed by L3Harris during the 10-year renewal period, The City will be responsible for the purchase and install of a replacement unit and installation kit, which may be any VMAT model sold by L3Harris and approved in the latest FAA advisory circular. Pricing for the purchase, installation and support of any new model VMAT units will be presented to The City for consideration and will be mutually agreed upon in a contract amendment. Upon installation, L3Harris will maintain the units under this contract for the remaining duration of the contract term.

If L3Harris begins to market and sell other model VMAT units that are approved on the latest FAA advisory circular, an amendment to this contract may be made to include pricing for the purchase, installation, maintenance and repair of new model VMAT units if desired by The City.

**VMAT PRIME PLUS MAINTENANCE ON THE CITY’S CURRENT 179 VMATS**

**Table 1** presents annual VMAT pricing on The City’s 179 VMAT units (77 VMATs at Chicago Midway International Airport (MDW) and 102 VMATs at Chicago O’Hare International Airport (ORD)) as required by the Advisory Circular.

The Pricing shown represents a **3% discount** from the previous VMAT Maintenance Plan provided to the CDA.

**Table 1: Pricing for Annual VMAT Prime Plus O&S Service – Ten (10) Year Fixed Renewal Period**

Year	2020	2021	2022	2023	2024
<b>Annual Fee for 179 VMAT Units</b>	\$148,570	\$148,570	\$148,570	\$148,570	\$148,570
Year	2025	2026	2027	2028	2029
<b>Annual Fee for 179 VMAT Units</b>	\$153,027	\$157,618	\$162,346	\$167,217	\$172,233
<b>Total Amount</b>					<b>\$1,555,291</b>

Table 1 Notes:

- 1) Annual pricing for Prime Plus O&S is \$830 per unit for the first five (5) years of the contract (*Previous Contract price was \$855.38*). Pricing in years six (6) through ten (10) increases annually by 3%.
- 2) Each contract year will be invoiced annually in advance.
- 3) The annual fee for years 1 – 5 is broken out as \$84,660 for ORD and \$63,910 for MDW and increases by 3% each year for years 6 – 10.

**ADDITIONAL VMAT UNITS & VMAT INSTALLATION KITS**

**Table 2** presents pricing for additional VMAT units and installation kits.

**Table 2: Pricing for VMAT Units and Installation Kits**

Item	Amount
Internal Mount VMAT Unit with External Hard Mount Antenna (MDW & ORD’s Current Setup)	\$6,200
Internal Mount VMAT Unit with External Magnetic Mount Antenna	\$6,700
Extra Internal Mount VMAT Installation Kit with External Hard Mount Antenna	\$1,950
Extra Internal Mount VMAT Installation Kit with External Magnetic Mount Antenna	\$2,450

Table 2 Notes:

- 1) The price for the VMAT units includes the VMAT, an installation kit, and a two-year hardware warranty.
- 2) Pricing will increase by 3% or CPI, whichever is greater each contract year.
- 3) Hardware will be invoiced upon shipment.



**VMAT INSTALL KIT INSTALLATION, VMAT INSTALLATION, AND SAT**

**Table 3** presents pricing for L3Harris to install the VMAT installation kit and VMAT unit, as well as perform SAT for new VMAT units. The City will be required to provide L3Harris with 4 vehicles per day for VMAT Kit and VMAT installation, and 25 vehicles per day for SAT.

**Table 3: Pricing for Installation of VMAT Units & Installation Kits and SAT**

Item	Number of VMAT Units Being Purchased	Total Installation Cost	Number of VMAT Units Being Purchased	Total Installation Cost
<b>VMAT Installation Kit Installation, VMAT Unit Installation &amp; SAT</b>	1	\$7,437	26	\$22,644
	2	\$7,437	27	\$23,258
	3	\$7,437	28	\$23,873
	4	\$7,437	29	\$24,487
	5	\$7,437	30	\$25,102
	6	\$8,205	31	\$25,679
	7	\$8,973	32	\$26,243
	8	\$9,741	33	\$26,792
	9	\$10,509	34	\$27,328
	10	\$11,277	35	\$27,850
	11	\$12,045	36	\$28,360
	12	\$12,813	37	\$28,856
	13	\$13,581	38	\$29,339
	14	\$14,349	39	\$29,810
	15	\$15,117	40	\$30,269
	16	\$15,885	41	\$30,716
	17	\$16,653	42	\$31,150
	18	\$17,421	43	\$31,573
	19	\$18,189	44	\$31,984
	20	\$18,957	45	\$32,384
	21	\$19,572	46	\$32,772
	22	\$20,186	47	\$33,150
	23	\$20,801	48	\$33,517
	24	\$21,415	49	\$33,873
	25	\$22,030	50	\$34,218

Table 3 Notes:

- 1) Pricing will increase by 3% or CPI, whichever is greater each contract year.
- 2) Installation services will be invoiced upon installation completion.

**VMAT UNIT ONLY INSTALLATION AND SAT**

**Table 4** presents pricing for L3Harris to install the VMAT unit only, as well as perform SAT for new VMAT units. The City will be responsible for having qualified, L3Harris trained City staff perform the installation of the VMAT installation kits, and will be required to provide L3Harris with 25 vehicles per day for VMAT Installation and SAT. Should L3Harris technicians arrive on-site and find that VMAT installation kits were not installed properly, The City will be billed on a time and materials basis for any additional necessary work to ensure that all kits and units are properly installed and are ready to go through SAT.



**Table 4: VMAT Unit Only Installation and SAT**

Item	Number of VMAT Units Being Purchased	Cost of Installation Services
L3Harris VMAT Unit Installation & SAT Only (Qualified, L3Harris Trained City Staff Installs The VMAT Installation Kits)	1-25	\$7,750
	26-50	\$9,750
	51-75	\$11,750

Table 4 Notes:

- 1) Pricing will increase by 3% or CPI, whichever is greater each contract year.
- 2) Installation services will be invoiced upon installation and SAT completion.

**MAINTENANCE ON NEW VMATS**

Table 5 presents annual VMAT Prime Plus O&S pricing for newly purchased VMAT units during the new contract’s term.

**Table 5: Pricing for Annual Prime Plus VMAT O&S Service – Ten (10) Year Fixed Renewal**

Year	2020	2021	2022	2023	2024
Annual Fee per Additional VMAT	\$830	\$830	\$830	\$830	\$830
Year	2025	2026	2027	2028	2029
Annual Fee per Additional VMAT	\$855	\$881	\$907	\$934	\$962

Table 5 Notes:

- 1) O&S Services will begin and will be invoiced for upon VMAT SAT or within ninety (90) days of receipt of the VMATs by the airport, whichever occurs first.

**APPLICABLE TAXES & FEES**

Taxes have not been included in the pricing in this quote. Applicable tax rates will be imposed at the time of billing and The City is solely responsible for paying the additional expense. If the City is tax exempt, they will need to provide a tax exemption certificate.

**PRICE VALIDITY**

This price is valid through November 2030.

**QUESTIONS**

Please contact me with any questions or concerns at [kathy.taylor@l3harris.com](mailto:kathy.taylor@l3harris.com) or 703-245-4289, or contact your designated Customer Relationship Manager (CRM) Jessica Martell at [jessica.martell@l3harris.com](mailto:jessica.martell@l3harris.com) or 571-230-8200 if you require additional technical information. Thank you for the opportunity to earn your business.

Sincerely,

Kathleen W. Taylor  
Contracts Manager

cc: Chris Zanardi, Symphony General Manager, Symphony, L3Harris  
Jessica Martell, Symphony CRM Director, Symphony, L3Harris



DEPARTMENT OF PROCUREMENT SERVICES

CITY OF CHICAGO

**NO STATED GOAL REPLY MEMORANDUM**

TO: Jamie L. Rhee  
Commissioner  
Department of Aviation

FROM:   
Shannon E. Andrews *ms*  
Chief Procurement Officer

DATE: JAN 15 2020

RE: Installation and Maintenance of Exelis VMAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance Broadcast (ADS-B) Vehicle Tracking Units  
Specification No. 1193760 Requisition No. 317578

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Upon further review and consideration, the Department of Procurement Services approves the No Stated Goal request for the Installation and Maintenance of Exelis VMAT Universal Access Transceiver (UAT) Automatic Dependent Surveillance Broadcast (ADS-B) Vehicle Tracking Units.

If you have any questions, please contact Monica Jimenez, First Deputy Procurement Officer, at (312) 744-0845.

MJ:gs



CERTIFICATE OF FILING FOR  
CITY OF CHICAGO ECONOMIC DISCLOSURE STATEMENT

EDS Number: 148808

Date of This Filing:01/20/2020 01:48 PM

Certificate Printed on: 01/20/2020

Original Filing Date:01/20/2020 01:48 PM

Disclosing Party: L3 Harris Technologies, Inc    Title:Contracts Manager  
Filed by: Kathleen Taylor

Matter: Vehicle Movement Area Transponders  
(VMATS) ORD MDW (NCRB).

Applicant: L3 Harris Technologies, Inc

Specification #: 1193760

Contract #:

The Economic Disclosure Statement referenced above has been electronically filed with the City. Please provide a copy of this Certificate of Filing to your city contact with other required documents pertaining to the Matter. For additional guidance as to when to provide this Certificate and other required documents, please follow instructions provided to you about the Matter or consult with your City contact.

A copy of the EDS may be viewed and printed by visiting <http://webapps1.cityofchicago.org/EDSWeb> and entering the EDS number into the EDS Search. Prior to contract award, the filing is accessible online only to the disclosing party and the City, but is still subject to the Illinois Freedom of Information Act. The filing is visible online to the public after contract award.



**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**SCHEDULE**

Name Of Additional Insured Person(s) Or Organization(s)	Location(s) Of Covered Operations
BLANKET WHERE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT EXECUTED PRIOR TO LOSS	
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

**A. Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

C. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or

2. Available under the applicable Limits of Insurance shown in the Declarations;  
whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART  
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

**SCHEDULE**

Name Of Additional Insured Person(s) Or Organization(s)	Location And Description Of Completed Operations
BLANKET WHERE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT EXECUTED PRIOR TO LOSS	
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

**A. Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
  2. Available under the applicable Limits of Insurance shown in the Declarations;
- whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.



MISSION NETWORKS  
2235 Monroe Street  
Herndon, VA 20171  
phone 1-703-245-4289  
kathy.taylor@L3Harris.com

September 19, 2019

Mr. Keith Wisniewski  
General Manager Airfield Operations ORD  
O'Hare International Airport  
P.O. Box 66142  
City Atrium Building  
Chicago, IL 60666

Subject: The City of Chicago – Professional Services Agreement  
Sample Agreement

Dear Mr. Wisniewski:

L3Harris Technologies, Inc. (L3Harris) agrees to the standard terms and conditions contained in the subject sample agreement. The initialing of this Agreement is not intended to be seen as acceptance of the final Agreement. L3Harris will need to review the final Agreement prior to acceptance.

Should you have any questions or concerns, please contact Jessica Martell at [Jessica.Martell@L3Harris.com](mailto:Jessica.Martell@L3Harris.com) or 571-230-8200 or me at [Kathy.Taylor@L3Harris.com](mailto:Kathy.Taylor@L3Harris.com) or 703-245-4289.

Sincerely,

A handwritten signature in blue ink that reads "Kathleen W. Taylor".

Kathleen W. Taylor  
Contracts Manager

cc: Jessica Martell, Director of Customer Relationship Management, SAS, L3Harris



U.S. Department of  
Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

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**Subject:** Airport Ground Vehicle Automatic  
Dependent Surveillance - Broadcast (ADS-B)  
Out Squitter Equipment

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**Date:** 4/11/2016  
**Initiated by:** AAS-1

**AC No:** 150/5220-26  
**Change:** 2

**1. Purpose.** This change provides updated reference to the current version of the Vehicle Automatic Dependent Surveillance - Broadcast (ADS-B) Specification, FAA-E-3032, published January 7, 2015. The contact information of the existing product has been updated and a new qualified product (appendix A) is also included in the change 2.

**2. Principal Changes.**

a. Revised to reflect the current version of the Vehicle Automatic Dependent Surveillance - Broadcast (ADS-B) Specification, FAA-E-3032, published January 7, 2015, in the following sections: 1, 2a, and 7b(3)

b. Updated contact information of the existing qualified product. (Appendix A)

c. Included a new FAA qualified product. (Appendix A)

Michael J. O'Donnell  
Director of Airport Safety and Standards

**APPENDIX A. QUALIFIED PRODUCTS**

FAA Approved Model Number: FDL-978-GTX/E  
Name: V-MAT (Vehicle Movement Area Transmitter)  
ADS-B data link: 978 MHz Universal Access Transceiver  
Vendor: Harris Corporation  
Manufacturer: FreeFlight Systems  
Contact: Harris Corporation  
(855) 890-5137  
[CAS@Harris.com](mailto:CAS@Harris.com)  
[www.symphonycdm.com](http://www.symphonycdm.com)

FAA Approved Model Number: FDL-978-GTX/A  
Name: External Mount VMAT (Vehicle Movement Area Transmitter)  
ADS-B data link: 978 MHz Universal Access Transceiver  
Manufacturer: FreeFlight Systems  
Contact: FreeFlight Systems  
(800) 487-4662  
[info@freeflightsystems.com](mailto:info@freeflightsystems.com)  
[www.freeflightsystems.com](http://www.freeflightsystems.com)



U.S. Department of  
Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

Consolidated to include Change 2

**Subject:** Airport Ground Vehicle Automatic  
Dependent Surveillance - Broadcast (ADS-B)  
Out Squitter Equipment

**Date:** 11/14/2011  
**Initiated by:** AAS-1

**AC No:** 150/5220-26  
**Change:**

## 1. Purpose of the Advisory Circular.

This Advisory Circular (AC) provides guidance on the development, installation, testing, approval, and maintenance of Automatic Dependent Surveillance – Broadcast (ADS-B) Out squitter units for airport ground vehicles. Using this AC, airports will be able to acquire approved and authorized airport ground vehicle ADS-B squitter units that are compliant with Title 14 Code of Federal Regulations (CFR), Part 91, Automatic Dependent Surveillance-Broadcast (ADS-B) Out Performance Requirements to Support Air Traffic Control (ATC) Service, as well as the initial set of ADS-B applications. Please note that the technical specifications for manufacturing ADS-B squitter units for airport ground vehicles are published in the FAA's document, FAA-E-3032, Vehicle Automatic Dependent Surveillance - Broadcast (ADS-B) Specification, published January 7, 2015.

## 2. To Whom this AC Applies.

- a. All airport ground vehicle ADS-B squitter units must meet the requirements stated in FAA-E-3032, Airport Ground Vehicle ADS-B Specification, January 7, 2015.
- b. Airport and vehicle operators should follow the operational guidance in this AC to ensure proper operation of airport ground vehicle ADS-B units. While such units are not currently required, the FAA strongly encourages airport operators to voluntarily equip appropriate vehicles with airport ground vehicle ADS-B squitter units.
- c. In general, use of this AC is not mandatory. However, use of this AC is mandatory for all Part 139 certificated airports using this equipment, as well as projects funded with federal grant monies through the Airport Improvement Program (AIP) and with revenue from the Passenger Facility Charge (PFC) Program. See Grant Assurance No. 34, Policies, Standards, and Specifications, and PFC Assurance No.9, Standards and Specifications.
- d. The AC is required for vendors developing, installing, testing, and seeking approval of ADS-B units in airport ground vehicles.
- e. It is also recommended for vendors, airport operators, and other personnel who will implement, monitor, and use the airport ground vehicle ADS-B squitter units on the

airport. ADS-B squitter units used must meet the technical specifications of this AC. The FAA will issue a separate AC on operational use of ground vehicles equipped with ADS-B squitter units in the future.

f. The primary locations for installation of ADS-B squitters on vehicles are the 35 airports equipped with ASDE-X and the nine airports scheduled to receive ASSC upgrades to their ASDE-3 systems. ASDE-X and ASSC systems are needed to receive the ADS-B squitter signals for use on ATC displays. Airport Operators at these 44 airports (as shown in Appendix A) are encouraged, but not required, to equip their vehicles with ADS-B squitters in order to enhance safety and situational awareness. In the future, FAA may deploy ASSC or ADS-B surface surveillance volumes to additional airports that could then be appropriate sites for equipage of vehicles with ADS-B squitters. Information on grant funding eligibility is addressed in FAA Order 5100-38, the Airport Improvement Program Handbook, ([http://www.faa.gov/airports/aip/aip\\_handbook/media/aip-handbook-order-5100-38d.pdf](http://www.faa.gov/airports/aip/aip_handbook/media/aip-handbook-order-5100-38d.pdf)).

g. Airports without FAA deployed surface surveillance may choose to equip their vehicles with ADS-B squitters. Aircraft equipped with ADS-B in avionics and Cockpit Display of Traffic Information (CDTI) will enable pilots to see ADS-B equipped vehicles location on in cockpit moving maps. This equipage is expected to become more widespread in future years. Airports without FAA deployed surface surveillance should consider current and near-term equipage of the aircraft using their airport when deciding on investments in ADS-B vehicle squitters.

### **3. Background.**

Every year, there are incidents and accidents involving aircraft and vehicles at airports that have potentially serious consequences. Many of these events occur in periods of reduced visibility, which can result in a loss of situational awareness for flight crews and air traffic controllers. The FAA is in the process of deploying several systems and technologies to help reduce the number and severity of these incidents. Automatic Dependent Surveillance – Broadcast (ADS-B) has been identified as a cornerstone technology in the FAA’s Next Generation Air Transportation System (NextGen) initiative to modernize the safety, efficiency, and capacity of the National Airspace System.

ADS-B will provide improved surveillance in the terminal, en route, and on surface environments, and will provide equipped aircraft with shared situational awareness via a cockpit display of proximate traffic. In order to achieve the benefits of ADS-B on the airport surface, surface vehicles and aircraft should be equipped with the ability to transmit ADS-B messages.

At airports with no surface surveillance, ADS-B can serve as a means to improve situational awareness for both air traffic control and aircraft operators equipped with the ability to receive and display ADS-B messages. This capability provides for a high level of safety. The inclusion of airport vehicles into the surface surveillance picture gives air traffic controllers and operators one more way to identify traffic issues, understand the most

efficient way to proceed on the airport surface, and avoid incursions.

At airports already equipped with surface surveillance, such as Airport Surface Detection Equipment – Model X (ASDE-X), ADS-B will provide pilots with improved communication with air traffic control and efficiency of operations. ASDE-X information is fed into the Traffic Information Service-Broadcast (TIS-B) service and could provide pilots with a complete surface picture. This situational awareness can be employed to provide supplemental benefits to existing surface surveillance and provide an additional resource for future applications of ADS-B in the surface environment.

**a. ASDE-X and ASSC.** The FAA has deployed the ASDE-X to 35 airports. The FAA is also upgrading existing Airport Surveillance Detection Equipment-Model 3 (ASDE-3) sites at 9 airports with multi-lateration (MLAT) capability to produce an Airport Surface Surveillance Capability (ASSC). This will give air traffic control the ability to maintain surveillance of ground targets. The ASDE-X system was designed to support safe ground operations at an airport by providing reliable and accurate information on the location of aircraft and ground vehicles. It does this through a combination of technologies, including airport surface movement radar (SMR), airport surveillance radar (ASR), MLAT, and ADS-B. ASSC provides this capability using MLAT and ADS-B.

Due to the inherent problems associated with radio frequency and radar transmissions, a single sensor surveillance system may not provide a complete and accurate depiction of a target to the controller. The ASDE-X system mitigates this problem by fusing the data from several different sources, primary and secondary radar including MLAT and ADS-B, to provide the most accurate target information as compared to single sensor systems. The ASDE-X system receives the ADS-B position report, the radar return, and MLAT position report and “fuses” them into a single accurate target report. Data fusion provides the most complete and accurate picture of the intended target’s position and motion. For example, fused data, combining data from the SMR, MLAT, and ADS-B, would provide controllers with the aircraft’s size, identification, and position whereas each data source alone could only provide a piece of this information. These systems also can alert controllers to potential conflicts so they can take appropriate action to prevent surface incidents.

The radar component of the ASDE-X system can detect aircraft and vehicles in and around the airport operational area without the use of airport ground vehicle ADS-B squitter units. However, during periods of heavy and sustained precipitation, the precipitation may attenuate the radar, thus reducing the probability of vehicle detection. In these cases, vehicles equipped with airport ground vehicle ADS-B squitter units can be tracked by two additional sources of position data, ADS-B and MLAT, thus increasing the accuracy and probability of detection. Additionally, the ADS-B message set provides identification data that is not available from the ASDE-X or ASSC systems.

ADS-B differs from MLAT in the method in which position data is computed. An MLAT system depends on a series of receivers on the surface calculating the difference in the time of arrival of a signal from targets to determine position. At least four sensors are necessary to provide position information that is both accurate and has a high level of integrity. ADS-

B transmits a signal, much like a transponder, but the position information is satellite based, such as those in the Global Positioning System (GPS) constellation. The position and identification information derived from the ADS-B is transmitted to air traffic control and fused with ASDE-X surveillance sources. ADS-B can serve to supplement existing MLAT surveillance for air traffic control, and MLAT can be used as an input to the TIS-B service to provide a more complete traffic picture to operators who have equipped with the ability to display ADS-B.

**b. ADS-B.** The ADS-B system is an advanced surveillance technology that combines a satellite positioning service, aircraft avionics, and ground infrastructure to enable transmission of more accurate information between aircraft and air traffic control. The system enables equipped aircraft and ground vehicles to continually broadcast information, such as identification, current position, altitude, and velocity. ADS-B uses information from a position service, e.g. GPS, to determine the aircraft/vehicles location, thereby making this information more timely and accurate than the information provided by a conventional radar system. ADS-B also can provide the platform for aircraft to receive various types of information, including ADS-B transmissions from other equipped aircraft or vehicles. ADS-B is automatic because no external interrogation is required, but is “dependent” because it relies on onboard position sources and onboard broadcast transmission systems to provide surveillance information to air traffic control and ultimately to other airport users.

The capability of transmitting ADS-B information is referred to as “ADS-B Out”. ADS-B Out can provide a more accurate and timely position report that includes identity and other information, but it does not provide operators with any new services or information. Operators can voluntarily equip with the equipment necessary to receive ADS-B messages and other broadcast services, such as TIS-B, and display that information in the cockpit. The receive function of ADS-B is referred to as “ADS-B In”; ADS-B In is not required by the final rule but can provide significant benefits.

The ADS-B system provides aircraft/vehicle position information using data provided by the unit’s GPS navigation system and transmitted via Mode S Extended Squitter (ES) or Universal Access Transceiver (UAT). ADS-B equipment receives highly accurate GPS signals and uses them to determine the precise location of the aircraft/vehicles on the airport surface. The system converts that position into a unique digital code and transmits it, along with a unique identification code, to locate and identify the exact aircraft/vehicle. The broadcast of the ADS-B position provides a signal for MLAT, providing two separate sources of position data. This precise data also enables other ADS-B applications, including Airport Traffic Situation Awareness (ATSA with Indications and Alerts). Airport Traffic Situation Awareness involves the use of a cockpit display that depicts the runway environment and displays traffic from the surface up to approximately 1,000 feet above ground level on final approach and is used by the flight crew to help determine runway occupancy. This application also is designed to reduce the potential for deviations, errors, and collisions by increasing flight crew situational awareness while operating an aircraft on the airport. This application also provides an alerting function to assist in the identification of conflicts and/or the avoidance of runway incursions. Flight crews will use a cockpit

display and possible aural notifications to increase awareness of other traffic positions in the squitter area.

The vehicle ADS-B squitter units will support the following ADS-B applications:

- Air Traffic Control (ATC) Surveillance for Airport Situation Awareness;
- Airport Traffic Situation Awareness; and
- Airport Traffic Situation Awareness with Indications and Alerts.

Airport ground vehicle ADS-B squitter units are being deployed to further enhance the ability to reduce the risk of runway incursions and conflict between aircraft and vehicles operating in the airport. The airport ground vehicle ADS-B squitter units utilize an ADS-B transmitter to broadcast a highly accurate position (GPS based), which is received by various ground stations and aircraft on or near the airport and presented on a display. Additionally, the ADS-B system provides a mechanism for the delivery and display of an integrated surface picture to airport operators through an additional display capability. While ATC surveillance benefits are only applicable to airports that currently have ASDE-X or ASSC, airport ground vehicle squitter units may be deployed at any airport. These airports could still derive benefit from airport ground vehicle squitter units through ADS-B cockpit applications and through airport operator displays.

The airport ground vehicle ADS-B squitter unit will utilize a sensor navigation source capable of providing highly accurate position data as outlined in the specification. The airport ground vehicle ADS-B squitter units can operate on either the 1090 ES link or the 978 MHz/UAT link; however, due to the 1090 MHz spectrum congestion and use by numerous other systems, the FAA strongly prefers the use of the 978 MHz/UAT link. The existing terminal radar secondary surveillance system, many aircraft transponders, and several other systems currently use the 1090 MHz frequency. The extensive use of the 1090 MHz frequency has the potential to cause numerous degradations to any system using 1090 MHz.

Whether the unit is capable of transmitting on just one link or both (1090 and 978 MHz), the unit must only transmit on one link at any given time. The airport ground vehicle ADS-B squitter transmissions will only be active when the vehicle position is within the defined squitter transmit area. The ADS-B equipment will contain a transmit map that will control the unit on/off function based on position of the vehicle on the airport.

The FAA will authorize the airport operator and potentially other entities to deploy the airport ground vehicle ADS-B squitter units. The vehicles equipped with the ADS-B squitter units will include airport vehicles, fire and rescue vehicles, other vehicles authorized by the airport operator, and FAA vehicles.

**c. Airports Eligible for Early Implementation.** The Federal Communication Commission (FCC) is pursuing a rulemaking to allow vehicles to transmit on 1090 MHz. The FCC approved the waiver request on February 12, 2010 in DA 10-259. The use of 978 MHz is already approved for use on vehicles.

**Table 1. Airports with Existing or Planned FAA Surveillance Systems.**

The future use of vehicle units at airports other than those equipped with FAA surveillance systems is not yet defined. Below is a table of airports currently equipped or planned to be equipped with FAA surveillance systems by 2017.

Identifier	Airport
<b>ASDE-X equipped airports</b>	
BWI	Baltimore-Washington International Thurgood Marshall Airport
BOS	Boston Logan International Airport
BDL	Bradley International Airport
MDW	Chicago Midway Airport
ORD	Chicago O'Hare International Airport
CLT	Charlotte Douglas International Airport
DFW	Dallas-Ft. Worth International Airport
DEN	Denver International Airport
DTW	Detroit Metro Wayne County Airport
FLL	Ft. Lauderdale/Hollywood Airport
MKE	General Mitchell International Airport
IAH	George Bush Intercontinental Airport
ATL	Hartsfield-Jackson Atlanta International Airport
HNL	Honolulu International –Hickam Air Force Base Airport
JFK	John F. Kennedy International Airport
SNA	John Wayne-Orange County Airport
LGA	LaGuardia Airport
STL	Lambert-St. Louis International Airport
LAS	Las Vegas McCarran International Airport
LAX	Los Angeles International Airport
SDF	Louisville International Airport-Standiford Field
MEM	Memphis International Airport
MIA	Miami International Airport
MSP	Minneapolis St. Paul International Airport
EWR	Newark International Airport
MCO	Orlando International Airport
PHL	Philadelphia International Airport
PHX	Phoenix Sky Harbor International Airport
DCA	Ronald Reagan Washington National Airport
SAN	San Diego International Airport
SLC	Salt Lake City International Airport
SEA	Seattle-Tacoma International Airport
PVD	Theodore Francis Green State Airport
IAD	Washington Dulles International Airport
HOU	William P. Hobby Airport
<b>Airports to be equipped with ASSC (2014-2017 timeframe)</b>	
SFO	San Francisco International Airport
CLE	Cleveland/Hopkins International Airport
PIT	Pittsburgh International Airport
PDX	Portland International Airport

ADW	Andrews Air Force Base
ANC	Anchorage International Airport
CVG	Cincinnati/Northern Kentucky International Airport
MSY	Louis Armstrong New Orleans International Airport
MCI	Kansas City International Airport

**d. Definitions.** In this AC, the words “must”, “should”, and “may” are used to define different levels of requirements:

- (1) **Must:** Conveys a requirement.
- (2) **Should:** Describes a recommendation.
- (3) **May:** Denotes a permissible practice or action, but not a requirement.

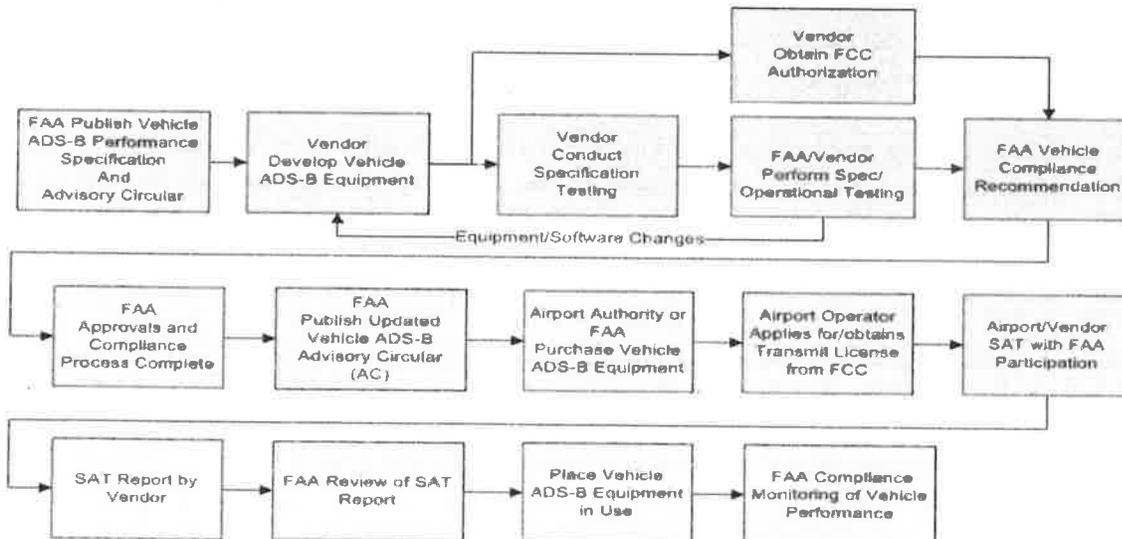
(4) **Airport Ground Vehicle ADS-B Equipment:** The navigation source, processing, and ADS-B transmission equipment that determines the position of the surface vehicle in which it resides and broadcasts that information on one of the two ADS-B data links (978 MHz UAT or 1090 MHz ES).

(5) **Squitter:** Output pulses from an airport ground vehicle ADS-B squitter unit generated by an internal triggering system rather than by external interrogation pulses.

(6) **Squitter Transmit Map for Airport Surface:** The squitter maps of the airport surface will define where the squitter unit will be active by controlling the squitter transmit out. The FAA will generate the squitter transmit maps and post them online for download. All airports with ASDE-X will have a Squitter Transmit Map available for download on the website for no charge. Squitter Transmit Maps for Airport Surface will be derived from ASDE-X maps.

**4. Developing Equipment to Specification.**

**a. Airport Ground Vehicle ADS-B Process Diagram.** The following process flow diagram (Figure 1) provides an overview of the steps and processes necessary to complete the vehicle ADS-B project.



### Figure 1. Vehicle ADS-B Process Diagram

**b. Airport Ground Vehicle ADS-B Specification.** The vehicle ADS-B squitter specification document details requirements for the vehicle units residing in airport surface vehicles, which are necessary to determine the position of the surface vehicle in which it resides and broadcast that information on one of the two ADS-B data links. This document provides the requirements for both 978 MHz UAT and 1090 MHz ES transmissions. Vendors producing equipment for surface vehicles must adhere to the requirements stated in the document.

The document addresses the broadcast of ADS-B only (the reception and display of ADS-B data in the vehicle is not addressed). Additionally, the document addresses testing and compliance of the airport ground vehicle ADS-B squitter units and includes guidelines for verification.

**c. FAA Specification Testing.** The airport ground vehicle ADS-B Factory Acceptance Test (FAT) plan and Site Acceptance Test (SAT) plan will outline the test procedures and processes necessary for the vehicle units to demonstrate compliance with the specification document. The airport ground vehicle ADS-B squitter units will be tested to verify they meet the functional and performance requirements. Testing includes the bench tests and environmental tests outlined in the specification document. Requirements for unit level testing are described for both 1090 MHz ES and 978 MHz UAT equipment. These tests are performed at the vendor's facilities as approved by the FAA. Integration testing of the airport ground vehicle ADS-B unit, including the navigation system and the ADS-B transmitting system, is conducted to verify system performance. The vendor submits test documentation to the FAA verifying successful completion of the specified tests. The FAA reserves the right to witness specific test procedures at the vendor's facility.

**d.** Subsequent to obtaining approval for the bench and environmental test results, the vendor will make a unit available to the FAA for additional testing at the FAA Technical Center. The FAA will conduct additional testing of the unit for an operational equivalent to a first article test. This testing will consist of limited bench testing of key requirements to verify performance. The FAA may require the vendor to provide test tool support similar to the capabilities that the vendor may have used for the factory bench testing to enable specific tests or provide access to internal test points for verification. Also, the unit will be subjected to testing at a specified test facility that verifies the operation at an airport location. The FAA will provide information to the vendor to generate a squitter transmit map for the airport surface to support the testing. The equipment will be tested to verify the squitter transmit map for the airport surface requirements within and outside of the squitter area. This test will consist of operating the equipment and subjecting the equipment to scenarios similar to those that would be encountered at the airport within which the vehicle is intended to operate.

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The FAA Technical Center has developed test plans, which will reference the testing requirements in the specification document, additional equipment-level tests that may be required at the FAA facility, and a Site Acceptance Testing (SAT) Checklist that will provide a detailed description of the SAT procedures that are required to demonstrate vehicle unit compliance.

Additionally, equipment manufacturers shall provide the FAA Technical Center evidence of a

quality control program for production of their airport ground vehicle ADS-B units when submitting the factory test report.

If the FAA authorizes the equipment, the FAA will update this AC to list the manufacturers whose vehicle units are authorized to operate on the airport surface.

## **5. Equipment Testing.**

**a. Vendor Site Acceptance Testing (SAT).** The vendor will conduct Site Acceptance Testing (SAT) with assistance from the airport at each airport that implements the airport ground vehicle ADS-B units. The FAA will verify SAT compliance of the units for any airport installing and utilizing the vehicle units. Subsequent SAT events at the same airport may be approved via post-SAT report submittals. This operational testing will require manufacturers to validate that the airport ground vehicle ADS-B squitter units are installed properly, updated squitter transmit maps are in all equipment units, all squitter airport map boundaries are correct, International Civil Aviation Organization (ICAO) codes are properly entered, and the airport ground vehicle ADS-B units operate properly. Successful completion of this phase of testing will verify compliance of the equipment.

Upon completion of the SAT report, the vendor must submit a copy of the report to the FAA for review.

**b. FAA Airport Ground Vehicle ADS-B Validation of SAT.** All units must undergo SAT. The vendor must submit the SAT report to the FAA, who will evaluate the submitted report and associated data for any deficiencies to determine whether the airport ground vehicle ADS-B units at the airport are ready for operation. The FAA may participate in each airport's SAT upon delivery of the airport ground vehicle ADS-B squitter units or choose to evaluate the vendor-provided SAT report only.

If deficiencies are found during SAT, the FAA will notify the vendor, which must take corrective actions to make the units compliant with the SAT. The vendor must submit a follow-up SAT report to the FAA, who will decide whether the system has passed the SAT and can be put into operation.

## **6. Requirements to Operate Equipment.**

**a. FCC Equipment Authorization.** Vendors are required to obtain FCC Equipment Authorization in accordance with 47 CFR Part 2, Subpart J. FCC form 731 must be filed for each unique product identifier and a unique FCC identifier is required on the product label. Product documentation must accompany the application, fees must be submitted, and descriptions of the required test data must be provided. Paragraph 2.1033(c) lists the requirements for equipment types other than those operating under Part 15 or Part 18 of the FCC rules.

Test requirements for equipment types other than those operating under Part 15 or Part 18 are described in the paragraphs listed in paragraph 2.1041. Paragraph 2.947 outlines the measurement procedure. The following paragraphs list measurement data requirements:

- 2.1046 – RF power output
- 2.1047 – Modulation Characteristics
- 2.1049 – Occupied Bandwidth
- 2.1051 – spurious emissions at antenna terminals
- 2.1053 – Field strength of spurious radiation (substitution method)
- 2.1055 – Frequency stability
- 2.1057 – Frequency spectrum to be investigated
- 2.1091 – RF radiation exposure evaluation: mobile devices
- 2.1093 - RF radiation exposure evaluation: portable devices

Applications for equipment authorization must be submitted electronically and the required exhibits must be in one of the following electronic file types : Adobe Acrobat (pdf), JPEG, Microsoft Excel, Microsoft Word, WordPerfect, or plain text. FCC requires up to 13 different exhibit types:

1. Identification label and location information
2. Attestation statements
3. External photos
4. Block diagrams
5. Schematics
6. Test Report
7. Test setup photos
8. User's manual
9. Internal photos
10. Parts list and tune-up information
11. RF exposure information
12. Operational description
13. Cover letters

All applications can be submitted to FCC via its OET Laboratory Division electronic filing site at <https://fjalfoss.fcc.gov/oetcf/eas/>. The application begins with the form 731 after which attachments are submitted. The web site automatically provides a fee form 159. Fees can be paid on-line via credit card or by mail using a hard copy of the form. Reviews take 5–10 weeks to complete.

**b. FCC Transmit Authorization.** Airport authorities or entities approved by the FAA to use Ground Vehicle ADS-B Out Squitter Equipment are required to obtain a license to transmit prior to operating. Title 47 CFR Part 87 governs the licensing and operation of equipment transmitting within aviation frequency bands. The applicable parts of 47 CFR Part 87 and references contained within shall be followed.

Applications for a transmit license can be filed through the FCC's Universal Licensing System (ULS). The ULS can be accessed at <http://wireless.fcc.gov/ULS/index.htm?job=home>. Airport authorities or entities approved by the FAA can apply to operate up to 200 vehicle squitters under a single application. A waiver adopted by the FCC on February 12, 2010 under DA 10-259 governs the use of 1090 MHz extended squitter on vehicles. Applications for a transmit licenses

shall be filed under the station class MOU for Aeronautical Utility Mobile Stations.

Prior to filing with the FCC, the applicant is required to coordinate with the applicable FAA Regional Frequency Management Office (FMO). The Regional FMO will provide a coordination number that should be included in the application to the FCC. Contact information and geographic areas of responsibility can be found at

[http://www.ntia.doc.gov/files/ntia/publications/d\\_5\\_11.pdf](http://www.ntia.doc.gov/files/ntia/publications/d_5_11.pdf)

## **7. Airport Ground Vehicle ADS-B Operational Guidance.**

### **a. Compliance Monitoring/Airport Ground Vehicle ADS-B Performance**

**Compliance.** The FAA will perform compliance monitoring throughout the life cycle of the airport ground vehicle ADS-B squitter units.

FAA will perform compliance monitoring of the units at airports where airport ground vehicle ADS-B units are installed. If system performance is degraded such that repair/replacement is required, the QRO will be notified. The airport operator will be notified to cease operating the nonfunctional airport ground vehicle ADS-B unit until the unit is operating within the specified requirements.

**b. Airport Requirements.** At airports implementing airport ground vehicle ADS-B squitter units, certain limitations will be imposed to maximize the benefits of this system. These limitations include the following:

(1) The FAA will only authorize the use of ADS-B squitter units by airport Operator or entities approved by the FAA and coordinated with the FCC and FAA Spectrum Office.

(2) The FAA will authorize a maximum of 200 total (1090 ES and UAT) airport ground vehicle ADS-B squitter units per location to ensure the performance of other FAA surveillance systems operating on the 1090 MHz frequency is not degraded. While any combination of 200 total units per airport is allowed, the FAA encourages airports to use the UAT units rather than the 1090 ES units due to potential congestion of the 1090 MHz spectrum.

(3) Vehicles equipped with the airport ground vehicle ADS-B squitter units must meet the requirements outlined in FAA-E-3032, Airport Ground Vehicle ADS-B Specification, January 7, 2015.

(4) The operation of aircraft ground vehicle ADS-B squitter units is confined to the airport movement area. For vehicles equipped with 978 MHz UAT squitter units, this includes operations in transit to the movement area. Use of the proper Squitter Transmit Map will ensure compliance with this requirement.

**c. Airport Ground Vehicle ADS-B Squitter Unit Maintenance.** The FAA will monitor compliance of the airport ground vehicle ADS-B squitter unit with the specification

document through the SBS Compliance Monitor system. Any failures to comply will result in maintenance/replacement of the unit. Any observed issues with the airport ground vehicle ADS-B squitter units at the airport should be reported to FAA, who will in turn report the deficient unit to the local airport operator. The airport operator is responsible for coordinating with the vendor to ensure the airport ground vehicle ADS-B squitter units are repaired or replaced.

**d. Obtaining Current Airport Maps.** The vendor-supplied user interface software will upload an airport ground vehicle ADS-B squitter transmit map for the airport surface to the airport ground vehicle ADS-B unit. The FAA must supply the vendor and airport with the current squitter transmit map for the airport surface in a .kml format from which the vehicle squitter transmit map for the airport surface should be created and uploaded to the airport ground vehicle ADS-B unit. The squitter transmit map for the airport surface must be used to control the airport ground vehicle ADS-B squitter on/off function of the vehicle unit.

The FAA will provide a website where the current squitter transmit map for the airport surfaces can be downloaded. If there is an updated squitter transmit map for the airport surface, the FAA will notify the airport operator.

**e. Radio Call Sign Assignment.** The airport ground vehicle ADS-B squitter units will be programmed with the vehicle radio call signs. The radio call signs are used in Air Traffic Control communications and will also be displayed on the ASDE-X display. A call sign is limited to a maximum of eight (8) characters. An example of possible call sign designators are as follows:

- CTYxxx is a city vehicle (xxx is number)
- ARFxxx is the aircraft rescue and fire fighting department vehicle
- FAAxxx is an FAA vehicle
- APTxxx is an airport operator vehicle

**f. Vehicle 24-Bit ICAO Code Assignment.** Each vehicle that is equipped with an airport ground vehicle ADS-B squitter unit must be uniquely identifiable. This will be accomplished by programming and storing the appropriate 24-bit ICAO identification and vehicle identification information into the unit in accordance with instructions provided by the manufacturer. Airport operators may request a block of 200 24-bit ICAO identification codes from the FAA Aircraft Registration Branch.

The block of 200 ICAO identification codes will enforce the limit of 200 airport ground vehicle ADS-B devices (total of 1090 ES and UAT) per airport.

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To obtain the 24-bit ICAO identification codes, approved airport authorities must send a signed and dated letter that indicates the following:

- Request is for airport ground vehicle ADS-B equipment
- Number of 24-bit ICAO codes required
- Point of contact

- Name and address of the airport where equipment will operate

Airports should send their requests to the following addresses:

Via U.S. Postal Service:

Aircraft Registration Branch, AFS-750 PO Box 25504  
Oklahoma City OK 73125

Via express courier:

Aircraft Registration Branch, AFS-750 6425 South Denning Ave  
Registry Building  
Oklahoma City OK 73169  
866-762-9434

**g. Training.** The airport ground vehicle ADS-B equipment manufacturer must provide a detailed training manual as part of the FAA specification compliance process. The FAA will review the training material to ensure all training plans and materials are properly developed for use by the FAA and airports that purchase the equipment.

## **8. Obtaining FAA and Other Publications.**

**a. RTCA Documents.** Obtain RTCA documents from RTCA, Inc., 1828 L Street NW, Suite 805, Washington DC 20036, (202) 833-9339, or from the RTCA website at <http://www.rtca.org>.

(1) RTCA/DO-260B, Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance Broadcast (ADS-B) and Traffic Information Services - Broadcast (TIS-B), December 2, 2009.

(2) RTCA/DO-282B, Minimum Operational Performance Standards for Universal Access Transceiver Automatic Dependent Surveillance - Broadcast Revision B, December 2, 2009.

**b. Title 14 of the Code of Federal Regulations (14 CFR), Aeronautics and Space.** Obtain copies of 14 CFR Parts 21, 23, 25, 27, 29, 43, and 91 from the Superintendent of Documents, Government Printing Office, PO Box 979050, St. Louis MO 63197. For general information, call 202-512-1800, fax 202-512-2250, or visit <http://www.gpo.gov/fdsys/> (select "Code of Federal Regulations").

(1) 14 CFR Part 91, Automatic Dependent Surveillance-Broadcast (ADS-B) Out Performance Requirements to Support Air Traffic Control (ATC) Service, Final Rule, May 28, 2010, <http://www.gpo.gov/fdsys/pkg/FR-2010-05-28/pdf/2010-12645.pdf>.

**c. FAA Advisory Circulars.** Access copies of ACs on the FAA website at [http://www.faa.gov/regulations\\_policies/advisory\\_circulars/](http://www.faa.gov/regulations_policies/advisory_circulars/).

**d. FAA Technical Standard Orders (TSO).** Find a current list of technical standard orders at <http://www.airweb.faa.gov/rgl>. You will also find the TSO Index of Articles at the same location.

**e. ARINC, Inc.** Obtain copies of ARINC documents from ARINC, Inc., 2551 Riva Road, Annapolis MD 21401, 800-633-6882 (telephone), 410-956-5465 (fax), or at <http://www.arinc.com>.

**f. SAE International.** Order SAE documents from SAE International, 400 Commonwealth Drive, Warrendale PA 15096-0001, 724-776-4970 (telephone), 724-776-0790 (fax) or at <http://www.sae.org>.



Michael J. O'Donnell  
Director of Airport Safety and Standards

**APPENDIX A. QUALIFIED PRODUCTS**

FAA Approved Model Number: FDL-978-GTX/E  
Name: V-MAT (Vehicle Movement Area Transmitter)  
ADS-B data link: 978 MHz Universal Access Transceiver  
Vendor: Harris Corporation  
Manufacturer: FreeFlight Systems  
Contact: Harris Corporation  
(855) 890-5137  
[CAS@Harris.com](mailto:CAS@Harris.com)  
[www.symphonycdm.com](http://www.symphonycdm.com)

FAA Approved Model Number: FDL-978-GTX/A  
Name: External Mount VMAT (Vehicle Movement Area Transmitter)  
ADS-B data link: 978 MHz Universal Access Transceiver  
Manufacturer: FreeFlight Systems  
Contact: FreeFlight Systems  
(800) 487-4662  
[info@freeflightsystems.com](mailto:info@freeflightsystems.com)  
[www.freeflightsystems.com](http://www.freeflightsystems.com)

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