

**RESOLUTION AUTHORIZING AND APPROVING WORK AUTHORIZATION  
NO. 2016-008 WITH TUSA CONSULTING SERVICES II, LLC,  
FOR MICROWAVE SUBSYSTEM MODERNIZATION DESIGN AND  
PROCUREMENT SPECIFICATIONS, AND RECOMMENDING APPROVAL  
BY THE HARRISON COUNTY BOARD OF SUPERVISORS**

WHEREAS, the Harrison County Emergency Communications Commission, hereinafter referred to as the HCECC, was created by the Board of Supervisors under authority of §19-5-305, Mississippi Code Annotated, and the Harrison County Emergency Communications Commission is governed and empowered according to §§ 19-5-301, et seq., Mississippi Code Annotated, as amended; and

WHEREAS, the Commissioners of the Harrison County Emergency Communications Commission have found that the county-wide integrated communications system includes various types of equipment which must be periodically monitored, maintained, upgraded, and/or replaced; and

WHEREAS, the Commissioners of the Harrison County Emergency Communications Commission find that the industry has seen a shift towards open standard Project-25 radio technologies and is in the process of migrating the current 800 MHZ EDACS public safety radio network to Project-25 (P25) digital radio standards to allow Harrison County to continue to meet the public safety communication needs now and in the future; and

WHEREAS, on August 30, 2016, the Harrison County Emergency Communications Commission authorized and approved a Prime Agreement with Tusa Consulting Services II, LLC, for professional consulting services, subsequently approved by Order of the Harrison County Board of Supervisors on September 6, 2016; and

**WHEREAS**, said Prime Agreement for Professional Services contains provisions for the express, written approval of Work Authorizations for work to be performed by Tusa Consulting Services II, LLC; and

**WHEREAS**, under said Prime Agreement with Tusa Consulting Services II, LLC ("TCSII"), Work Authorization Nos. 2016-001 through 2016-007 were authorized and approved; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that, in conjunction with Project 25 (P25) digital radio system expansion, Tusa Consulting Services II, LLC has submitted a written proposal for presentation to the Commission, of a Phased Approach for the Microwave Subsystem Modernization, which is a critical component in support of the P25 digital radio system project, a copy of said Proposal being attached hereto and incorporated herein as **Exhibit "1"**; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that as more fully provided in the Memo from Deputy Director Robert Bailey, attached hereto and incorporated herein as **Exhibit "2"**, the current microwave system has reached end of life by the vendor, and te replacement of such should proceed in a timely manner; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that the Commission is ready to move forward with the Design Phase of Microwave Subsystem Modernization, as it will determine the bandwidth needs, provide configuration design details and FCC preliminary licenses and design of specifications, and it is necessary to issue a Work Authorization to TCSII for this assignment; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that the Scope of Work for Work Authorization No. 2016-008 is Phase 1: Design,

consists of Task 1.1 Project Initiation, Task 1.2 Conceptual Microwave Design, and Task 1.3 Procurement Specifications Development for the replacement packet-based microwave subsystem; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that Work Authorization No. 2016-008, attached hereto and incorporated herein as **Exhibit "3"**, is in accordance with the terms and conditions of the September 6, 2016 Prime Agreement with TCSII, and all stated services are reasonable and necessary for the purposes of providing required E-911 services as provided in the E-911 Act (§§ 19-5-301 through 19-5-319 of the Mississippi Code of 1972, Annotated; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that the fees and expenses associated with this assignment are based on the hourly rates set forth in the 2016 Prime Agreement, broken down per Task, excluding expenses, as follows:

|  |           |                            |
|--|-----------|----------------------------|
| Task 1.1 - Project Initiation          | 8 Hours   | Not to Exceed \$ 1,200.00  |
| Task 1.2 - Conceptual Microwave Design | 130 Hours | Not to Exceed \$19,500.00  |
| Task 1.3 - Specifications Development  | 80 Hours  | Not to Exceed \$12,000.00, |

and as more fully described in the Scope of Work set forth in TCSII's Proposal, attached to hereto as **Exhibit "1"**; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that the fees associated with each approved Task are reasonable and customary, and fair market value for the services to be provided by Tusa Consulting Services II, LLC; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that the services to be performed by TCSII, as described on Work Authorization

No. 2016-008, are in the best interest of the public safety entities and the taxpayers of Harrison County, and would be consistent with the purposes and intent of §§ 19-5-301 through 19-5-319 of the Mississippi Code of 1972, Annotated; and

**WHEREAS**, the Commissioners of the Harrison County Emergency Communications Commission find that, subject to the approval of the Harrison County Board of Supervisors, it is in the best interest of the management, operation, development, and safety of the Harrison County Emergency Communication Commission to approve Work Authorization No. 2016-008, in the total amount not to exceed Thirty-Two Thousand, Seven and NO/100 Dollars (\$32,700.00); and

**WHEREAS**, the Commissioners of the Harrison County Communications Commission find that Staff is recommending the action to be taken in this Resolution, as stated on the Memorandum attached hereto and incorporated herein as **Exhibit "2"**;

**NOW THEREFORE, BE IT RESOLVED** by the Commissioners of the Harrison County Emergency Communications Commission as follows:

#### **SECTION 1**

Contingent upon approval by the Harrison County Board of Supervisors, Work Authorization No. 2016-008 to the September 6, 2016 Prime Agreement with Tusa Consulting Services II, LLC, ("TCSII") for Phase 1: Design - Tasks 1.1, 1.2, and 1.3 of the Microwave Subsystem Modernization Project, is authorized and approved. A copy of Work Authorization No. 2016-008, in the total amount not to exceed Thirty-Two Thousand, Seven and NO/100 Dollars (\$32,700.00), is attached hereto and incorporated herein as **Exhibit "3"**.

#### **SECTION 2**

The fees for each Task shall be based upon the consulting hours designated for each Task,

at the hourly rates set forth in the September 6, 2016 Prime Agreement with TCSII, and shall not exceed the following amounts:

|  |           |              |
|--|-----------|--------------|
| Task 1.1 - Project Initiation          | 8 Hours   | \$ 1,200.00  |
| Task 1.2 - Conceptual Microwave Design | 130 Hours | \$19,500.00  |
| Task 1.3 - Specifications Development  | 80 Hours  | \$12,000.00. |

### **SECTION 3**

The Harrison County Emergency Communications Commission respectfully requests that the Harrison County Board of Supervisors authorize and approve Work Authorization No. 2016-008 with Tusa Consulting Services II, LLC, in the total amount not to exceed Thirty-Two Thousand, Seven and NO/100 Dollars (\$32,700.00), as being reasonable, proper and fair market value for this assignment.

### **SECTION 4**

Upon receipt of a Notice to Proceed from Harrison County, Task 1.1 as described in the Scope of Work for Project Initiation, shall begin, to be completed within thirty (30) days following receipt of said Notice to Proceed.

### **SECTION 5**

Following completion of Task 1.1, and upon receipt of a Notice to Proceed from Harrison County, the Conceptual Microwave Design as more fully described in the Scope of Work for Task 1.2 may begin.

### **SECTION 6**

Upon approval by Harrison County of the final microwave configuration resulting from conceptual solution submittals developed by TCSII, as set forth in the Scope of Work for Task 1.2, and upon receipt of a Notice to Proceed from Harrison County, TCSII shall move forward with the

Development of Microwave Specifications (Task 1.3) for the replacement packet-based microwave subsystem.

**SECTION 7**

Contingent upon the approval of Harrison County, Mississippi, the Chairman of the Harrison County Emergency Communications Commission is authorized and directed to execute said Work Authorization No. 2016-008 as an act of and on behalf of the Harrison County Emergency Communications Commission.

**SECTION 8**

Any additional costs associated with this assignment shall not be performed without the issuance of a written Work Authorization formally approved by Harrison County and the Harrison County Emergency Communications Commission.

**RESOLVED** on this the 18<sup>th</sup> day of July, 2017.

The above and foregoing Resolution was introduced by Commissioner Brown, who moved the adoption of same. Said Motion was seconded by Commissioner Gordon.

Upon being put to vote, the results were as follows:

|  |               |
|--|---------------|
| Sheriff TROY J. PETERSON, Harrison County    | <u>AYE</u>    |
| Chief JOHN MILLER, City of Biloxi            | <u>ABSENT</u> |
| Capt. MARTY GRIFFIN, City of D'Iberville     | <u>AYE</u>    |
| Chief DWIGHT GORDON, City of Pass Christian  | <u>AYE</u>    |
| Chief MIKE BROWN, City of Long Beach         | <u>AYE</u>    |
| Chief MIKE BEYERSTEDT, City of Gulfport      | <u>AYE</u>    |
| STEVE DELAHOUSEY, Emergency Medical Services | <u>AYE</u>    |

WHEREUPON, Chairman Delahousey declared the motion carried and the resolution adopted on the 18<sup>th</sup> day of July, 2017.

**HARRISON COUNTY EMERGENCY  
COMMUNICATIONS COMMISSION**

BY: Steven J. Delahousey

ATTEST:

Rolot D. Bely

# Harrison County Microwave Subsystem Modernization Consultant Scope of Work

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Harrison County completed the installation and commissioning of its 800MHz EDACS Radio Network and Microwave Subsystem in 2001. For the past sixteen years, the radio/microwave network has operated reliably and has met its original design objectives. The true test of the resilience of the County's public safety network was proven during and in the aftermath of Hurricane Katrina in September 2005. While many radio systems in adjacent regions failed catastrophically during Katrina, this communications system remained fully operational after absorbing the brunt of 140 MPH winds and tidal surges.

The Microwave Subsystem is a critically important component of the 800MHz radio network. It is used as the wireless interconnection media between the various network's tower sites and control point switch. In addition, it provides a stable and reliable platform from which to ensure the transmitted launch timing for voice signals sent to 800MHz base stations is within required P25 tolerances to assure reliable user communications.

The originally-supplied microwave system is based on traditional circuit-switched telephony standards. Over the past decade, telephony technology has migrated away from circuit-switched configurations to more efficient and resilient packet-based solutions. In fact, AT&T is fast discontinuing the availability of most circuit-switched transport options in lieu of packet data and Ethernet broadband connectivity. Likewise, the manufacturers of microwave equipment have transitioned to IP/Ethernet equipment configurations and are withdrawing support of legacy circuit-switched devices. Alcatel (now part of Nokia Networks) has announced end of life status for the MDR-8000 microwave radios as now used by the County.

The County is already pursuing a new 800MHz Project-25 (P25) digital radio solution to replace its current EDACS technology via technical support provided by Tusa Consulting Services (TUSA). P25 800MHz base stations and prime site/core switch equipment are now utilizing packet-based technology and, as such, are not directly compatible with the County's existing MDR-8000 microwave subsystem. Thus, and for multiple reasons, a replacement of this legacy microwave equipment is needed. Although such equipment could be sourced via the County's radio vendor, that convenience comes at a cost with the addition of outside-vendor markups and an added layer of radio vendor project management resources.

The focus of the following consulting services taskset is to identify a fiscally sound and technically appropriate pathway for Harrison County's next-generation microwave backhaul solution. Further, the migration strategy to new microwave technology must be made in a manner that works to preserve and enhance the high level of radio system reliability as enjoyed by the County's public safety radio users.

## ***TUSA Phased Approach***

The following describes the recommended planning and procurement phases whose purpose is to drive the work toward a successful modernization solution. This first Phase addresses the immediacy of determining bandwidth needs, configuration design details and preliminary FCC licensing actions.

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EXHIBIT "1"



# Harrison County Microwave Subsystem Modernization

## Consultant Scope of Work

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Once a migration strategy has been determined by the District because of this work, development of technical specifications for the procurement of a modernized packet-based microwave subsystem would be initiated. A second Phase is prescribed that encompasses actual new-system procurement and identification of a best and most advantageous vendor.

This new microwave system will provide for broadband IP/Ethernet connectivity as well as support for legacy T-1 services as needed by the County's current 800MHz EDACS configuration. TUSA (with District oversight) would develop a set of project technical specifications and test procedures, as necessary, to undertake the procurement process and provide ongoing technical stewardship to ensure a successful project completion whose net reliability exceeds that of the current network configuration. The anticipated operational life span of this new microwave technology is no less than fifteen years.

### **Phase 1: Design**

#### **Task 1.1**

##### ***Project Initiation***

During this task, TUSA will meet with the District's designated project management team and other key personnel to confirm the project organization and the roles and responsibilities of the project participants. As part of this task, we will also work closely with the District to define project management standards, processes, report formats and metrics that will be used throughout the course of the P-25 modernization project.

The Project Principal (Nick Tusa) will provide project status reports, via email, during the course of the project. These reports will identify key accomplishments during the reporting period, expected accomplishments during the upcoming reporting period and identification of risk issues requiring management attention. The objective of these reports and discussions is to ensure that high-level management issues, as well as numerous operational and technical issues, are identified early and managed throughout the project's implementation and acceptance phases.

The Project Initiation task will require no more than 8 total consultant hours.

#### **Task 1.2**

##### ***Conceptual M/W Design***

Utilizing existing EDACS radio/microwave network configuration information as a starting point, TUSA would initiate microwave path analysis for the degree of reliability normal and customary for systems of this type (i.e., path reliability of 99.999% or fewer than 70-outage seconds annually).

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## Harrison County Microwave Subsystem Modernization Consultant Scope of Work

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The advent of high-speed desktop computing has ushered in an era of unprecedented precision in terms of radio system performance modeling. TUSA is licensed to use the Harris propagation modelling tool, RAPTR. This access allows our consultants to model microwave path performance. In addition, TUSA will utilize Google Earth to determine path clearance and the probability of ray blockage from new or known-planned building obstructions.

TUSA would consult with Harris to determine specific microwave data throughput constraints for its P25 equipment that must be mitigated by the microwave subsystem's configuration. Principally, these concerns center on data packet latency and jitter stability. While the primary utilization of the microwave subsystem will be for the operation of the new P25 trunked radio system (and interim operation of current EDACS technology), sufficient bandwidth can be secured to provide for private, non-telco data/video connectivity between County PSAPs and backup dispatch centers. In addition, it could be possible to spur off the primary microwave backbone to support data needs for remote police and fire operations.

Once the District's technical team has approved a final microwave configuration, as a result of conceptual solution submittals made by TUSA, a frequency coordination of the desired configuration would be undertaken by an FCC-approved coordination firm such as Comsearch.

Development of these microwave conceptual solutions will require 130 consultant hours. Frequency coordination processing fees as required by Comsearch are an outside, additional expense that will be invoiced as such by TUSA to the District. Presentation of findings to the District and County Supervisors, as may be required, would be an additional service not to exceed 8-hours or \$1,200 per occurrence.

### Task 1.3

#### ***Specifications Development***

TUSA would next develop procurement specification for the replacement packet-based microwave subsystem. These specifications would follow the general format of the previously-developed P25 radio specifications with respect to "front-end" County safeguards, workmanship standards, materials standards, conceptual configuration, warranty, and acceptance testing criteria.

The specifications would also include a detail of existing tower infrastructure facilities and areas within buildings available for equipment installation. Interface details and minimum specifications are required for the operation of P25 base stations via this new microwave subsystem would be presented within the specifications.

Development and submittal of microwave specifications would require 80 consulting hours.

# Harrison County Microwave Subsystem Modernization

## Consultant Scope of Work

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### Phase 2: Procurement

#### Task 2.1

##### *Procurement*

Once the District approves release of the Specifications to prospective vendors, TUSA would conduct a pre-proposal vendor conference and would facilitate site inspections for the various tower sites requiring the new microwave radio equipment. This activity would be initiated approximately two weeks after the specification release to vendors.

TUSA would develop responses to technical questions as raised by the vendor community and will supply the District with appropriate addenda draft material for potential release to vendors. It is anticipated that the procurement window for vendor proposals will be in the order of 45 days.

This project activity would require as many as 40 consulting services hours.

#### Task 2.2

##### *Vendor Response Evaluation*

Due to the specialized nature of this equipment, as few as three vendor responses are likely for a procurement of this type. TUSA would first evaluate each proposal for technical compliance with the specifications. Exceptions taken to County safeguards by a vendor could result in disqualification of that vendor's submittal. All acceptable proposals will be assigned a point-based score that is reflective of their actual compliance with specification requirements.

Next, TUSA would evaluate vendor costs, both initial costs as well as maintenance costs for the equipment. A composite score would then be developed that encompasses both technical and cost elements of each vendor submittal. A written recommendation would be submitted to the District for the apparent best and most advantageous vendor response.

This project activity would require 72 consulting hours. If additional vendor proposals in excess of the projected three are received, each added response would require an additional 24 hours by TUSA for review and evaluation.

### Consulting Services Fees

The existing fee structured as defined by the current TUSA-Harrison County Agreement would apply. Each of the following tasks is self-contained and results in a deliverable work product report or set of coverage map representations. TUSA will await instructions at the conclusion of each task before

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## Harrison County Microwave Subsystem Modernization Consultant Scope of Work

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initiate work on the next indicated task. By so doing, the District has complete control over the project and its incurred costs.

The costs per task (excluding travel/lodging/Comsearch costs, if any) are as follows:

|          |                            |             |
|----------|----------------------------|-------------|
| Task 1.1 | Project Initiation         | \$1,200.00  |
| Task 1.2 | Conceptual M/W Design      | \$19,500.00 |
| Task 1.3 | Specifications Development | \$12,000.00 |
| Task 2.1 | Procurement                | \$6,000.00  |
| Task 2.2 | Vendor Response Evaluation | \$10,800.00 |

The completion of each task, for the most part as described herein, results in a document deliverable that must be reviewed and commented on by the District. It is anticipated that these tasks can be fully completed within five months, assuming a 45-day vendor response period. TUSA personnel are ready to commence the work immediately, if necessary.



Rupert H. Lacy  
Executive Director

Harrison County Emergency  
Communications  
15309-B Community Road  
Gulfport, MS 39503  
228-831-0760

Robert G. Bailey Jr.  
Deputy Director

TO: Rupert Lacy, Executive Director  
911 Commission Members

FROM: Robert Bailey, Deputy Director *RGB*

RE: Tusa Consulting Work Authorization# 16-008

DATE: July 13, 2017

This Work Authorization will allow the replacement of the existing microwave system to proceed in an efficient and timely manner.

The first phase or design phase will address three (3) specific tasks. Those tasks are:

- The immediacy of determining our bandwidth needs
- The configuration design details and preliminary FCC licensing
- The design of procurement specifications for the installation of the necessary packet-based microwave subsystem.

It is imperative that the replacement of the current microwave system proceed in a timely manner as the Commission has already acknowledged that the current microwave system has reached end of life by the vendor.

This Work Authorization is a budgeted engineering project and there are adequate budgeted funds.

Therefore, I recommend approval of this Work Authorization.



Tusa Consulting Services II, LLC  
75757 Highway 082  
Covington, LA 70435

**WORK AUTHORIZATION FOR PROFESSIONAL SERVICES**

**Microwave Subsystem Modernization**  
(Project Title)

**16 - 008**  
(Work Authorization Number)

It is agreed to undertake the following work in accordance with the provisions of our Agreement for Consulting Services dated September 6, 2016.

**DESCRIPTION OF ASSIGNMENT:**

- PHASE 1: DESIGN:** Task 1.1 – Project Initiation  
Task 1.2 – Conceptual M/W Design  
Task 1.3 – Specification Development

See Attachment "1" - Scope of Work, for a more detailed description of the above Tasks.

**TIME SCHEDULE:**

Work to be performed pursuant to this Work Authorization No. 16-008 shall not commence until the Microwave Frequency Coordination Study approved in Work Authorization No. 16-007 is completed, and a Notice to Proceed is received from Harrison County.

Task 1.1 shall be completed within thirty (30) days of receipt of Notice to Proceed.

Task 1.2 shall commence upon completion of Task 1.1, and shall be completed within thirty (30) days of receipt of Notice to Proceed from Harrison County.

Task 1.3 shall commence upon completion of Task 1.2, and shall be completed within thirty (30) days of receipt of Notice to Proceed from Harrison County.

**MAXIMUM COST OF SERVICES:**

**220 Consultant Hours** for the below listed Tasks at the hourly rates pursuant to the Fee Schedule set forth in the 2016 Prime Agreement:

|  |           |                     |
|--|-----------|---------------------|
| Task 1.1 - Project Initiation          | 8 Hours   | \$ 1,200.00         |
| Task 1.2 - Conceptual Microwave Design | 130 Hours | \$19,500.00         |
| Task 1.3 - Specifications Development  | 80 Hours  | <u>\$12,000.00.</u> |

The maximum approved cost of this Project (Task 1.1, Task 1.2, and Task 1.3) is not to exceed... **\$32,700.00\*\***

CONSULTANT shall not perform any further services, nor be paid any additional compensation whatsoever without a prior, express, written Work Authorization or Amendment thereto, formally approved by the Harrison County Emergency Communications Commission (HCECC).

Should frequency coordination processing fees be required, said services shall not commence nor the obligation be incurred without the prior written approval of the HCECC and Harrison County.

Payments for services rendered shall only be allowed after the CONSULTANT has submitted an Invoice describing the services performed and itemizing the reimbursable costs.

Agreed as to scope of services, time schedule, and cost:

\_\_\_\_\_  
For Harrison County, MS

\_\_\_\_\_  
For Harrison County Emergency  
Communications Commission

\_\_\_\_\_  
Tusa Consulting Services II, LLC

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

ATTACHMENTS: Supporting Data

\*\*Cost will not be exceeded without a Supplemental Work Authorization