

An AT&T Response to  
The Alabama 9-1-1 Board's RFP # 16-001 for  
Next Generation 911 Systems and Services





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John Stuhrenberg  
VP Government & Education Solutions  
Office: 404-927-7020  
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March 04, 2016

Alabama 9-1-1 Board  
Reference: AL-NG911-RFP-16-001  
1 Commerce St.  
Suite 610  
Montgomery, AL 36104

Dear Alabama 911 Board:

The mission of the Alabama 911 Board is to maintain a secure environment and improve the quality of life of its citizens. To achieve your mission and remain within your budget, you must communicate cost-effectively with other departments and residents. Therefore, you want a qualified provider that can meet your requirements without sacrificing service and performance.

AT&T understands your priorities and the initiatives that are driving change within your organization. After carefully reviewing your requirements, we propose our cost-effective Next Generation 9-1-1 services.

Our proposed solution offers you

- Comprehensive account team support, customer service, and account management
- Scalable architecture that anticipates geographic expansion
- Outstanding network reliability and performance

As you evaluate our response, please note that AT&T can be a single source for all of your communication and networking needs. Whether for voice or data services—or the management of your entire network—AT&T has the resources to meet your requirements.

We look forward to working with the Alabama 911 Board on this important initiative. I'll follow up with you soon to discuss our proposed solution.

Sincerely,

John Stuhrenberg  
VP Government & Education Solutions

## Mobilizing Your World

### An AT&T Response to The Alabama 9-1-1 Board's RFP # 16-001 for Next Generation 911 Systems and Services

March 04, 2016

Joshua Yeager  
Account Manager  
AT&T  
4001 Carmichael Rd. 450  
Montgomery, AL 36106  
Office: 334-273-2130  
Cell: 334-652-4258  
[jy014k@us.att.com](mailto:jy014k@us.att.com)



**Proposal Validity Period**—The information and pricing contained in this proposal is valid for a period of 240 days from the date written on the proposal cover page unless rescinded or extended in writing by AT&T. **Terms and Conditions**—This proposal is conditioned upon negotiation and execution by the parties of a written agreement containing mutually acceptable terms and conditions. **Proposal Pricing**—Pricing proposed herein is based upon the specific product/service mix and locations outlined in this proposal, and is subject to the standard terms and conditions of AT&T unless otherwise stated herein. Any changes or variations in AT&T standard terms and conditions and the products, length of term, services, locations, and/or design described herein may result in different pricing. **Providers of Service**—Subsidiaries and affiliates of AT&T Inc. provide products and services under the AT&T brand. Where required, an AT&T Affiliate authorized by the appropriate regulatory authority will be the service provider. **Copyright Notice and Statement of Confidentiality**—© 2016 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo, and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks contained herein are the property of their respective owners. The contents of this document are unpublished, proprietary, and confidential and may not be copied, disclosed, or used, in whole or in part, without the express written permission of AT&T Intellectual Property or affiliated companies, except to the extent required by law and insofar as is reasonably necessary in order to review and evaluate the information contained herein.

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## Executive Summary

AT&T acknowledges the State of Alabama's intent to award this contract to the most capable NENA i3 911 solution provider. In our response, AT&T and West Corporation intend to demonstrate how our proposed solution will be the best option for the State of Alabama, both in transition of the current infrastructure as well as long term goals of the State. AT&T feels strongly about keeping people safe and our recent AT&T ESInet™ product announcement (2/29/16 att.com/publicsafety) confirms our national commitment to the future of 9-1-1 and Public Safety. AT&T and West are developing powerful 9-1-1 technology that will significantly improve performance and reliability of emergency communications into the future.

Our AT&T ESInet™ solution is designed to meet the NENA i3 standards – including SMS to 911. In fact, AT&T and West Corporation have been working together for over 20+ years to save lives and have been leaders in the development of 911 standards, including the current revision as well as working groups on the new releases, next generation databases and improved location accuracy.

AT&T is proposing a geographically diverse IP-enabled call routing and call delivery Emergency Services Internet Protocol (ESInet) solution for the State of Alabama. The solution provides a secure IP-based network with no single point of failure. With no single point of failure, the solution includes six ESInet call processing complexes located at high-value AT&T strategic datacenter facilities throughout the country. The ESInet will provide the core for a robust emergency services IP network that assures call delivery. The AT&T solution enables call delivery into a legacy PSAP environment, an IP-enabled 9-1-1 PSAP, or to peer ESInets. This environment will provide the State of Alabama with the flexibility to grow its own IP-enabled 9-1-1 solution and to share it with other systems in and around the nation. It also makes catastrophic events that may take down the State of Alabama system even more diverse in that calls can automatically fail over to other agencies' 9-1-1 systems. AT&T and West Corporation have deep security and support provisions in place. As the world's largest IP Company, AT&T has demonstrated experience in cybersecurity that is unlikely to be matched by any other respondents. All of this is backed by AT&T's 24/7/365 Resolution Center, AT&T Labs, AT&T's world class project management and service delivery organizations.

### AT&T ESInet™ Experience

AT&T supports more ESInet population served in the United States than any other providers in the industry. Notable installations include the State of Tennessee, State of Connecticut, the US Navy and many large customers in Florida, California and Texas.

One of the larger challenges of delivering an ESInet is the variability of end site equipment as well as migrating all of the incoming traffic to the new system. In the AT&T installations, AT&T has demonstrated experience delivering an i3 solution that connects a variety of different ANI/ALI controllers, both i3 and non-i3. AT&T has also demonstrated the ability to coordinate and install the entire necessary core and distribution infrastructure as well as migrate originating service provider traffic to the new platform.

As the State of Alabama deliberates on their next contracted solution provider, AT&T represents the most experienced and most demonstrated solution provider in this space. We look forward to working with the State of Alabama to add to the list of national Next Generation successes.

## Experience in Alabama

AT&T has invested in our Alabama communications networks, our people and local communities for 137 years. This project is important to AT&T, not only as a potential partner, but also because we have so much invested in the State of Alabama. We rely on Public Safety to keep our employees, their families and friends, our stores, our clients, and our neighbors safe and secure. It is with great interest to AT&T to make sure Alabama is best covered with the highest quality Next Generation 911 solution – consistent with our other installations nationwide.

By the numbers in Alabama:

- Approximately \$1.4 billion invested by AT&T in its best-in-class wired and wireless networks in Alabama from 2012-2014.
- 1,407 upgrades made in 2013-2015 including new cell sites, addition of wireless and wired network capacity and new broadband network connections in Alabama.
- 99.5% of population in Alabama covered by AT&T Mobile Broadband network as of November 2015.
- 819 Wi-Fi hotspots in Alabama as of January 2016.
- More than 6,300 AT&T employees working in Alabama as of December 2015.



- Approximately \$133 million spent on goods and services purchased from suppliers based in Alabama in 2014. This spending supports jobs and economic activity in the state.
- 17,000 additional business customer locations added to AT&T's fiber network in Alabama – part of the total 1 million locations added in the company's 21-state footprint– since the beginning of its aggressive expansion program in 2012.
- More than \$138 million in CAF II support devoted to Alabama (\$23 million annually) for the next 6 to 7 years to expand broadband service in rural areas of the state.
- Nearly 66,000 homes and small businesses in FCC-identified, predominately rural areas of Alabama will be reached thanks to our participation in the program.
- 795 students mentored by our employees in Alabama through Aspire Mentoring Academy from September 2012 to December 2014.
- More than 58,000 hours of personal time given by AT&T employees and retirees in Alabama to community outreach activities in 2014 – worth more than \$1.3 million.
- More than \$18.4 million contributed by AT&T, the AT&T Foundation and our employees from 2012 - 2014 through giving programs in Alabama.
- 9,693 AT&T retirees living in Alabama as of December 2015.
- 278 retail locations in Alabama, including our company-owned retail stores, authorized dealerships and national retail stores as of January 2016.
- More than \$212 million generated in local and state taxes by AT&T operations in Alabama in 2014.

AT&T has decades of experience in working with the State of Alabama Government including 8 existing communications procurement contract vehicles (T302, T410, T411, T412, T413, T414, T415, and T416). Five of these existing contracts list AT&T as the only solutions vendor approved. All of these contract vehicles serve as procurement avenues for both the State of Alabama (directly and indirectly servicing all state agencies) and are available as procurement vehicles by all local government entities within State of Alabama's borders.

## Advantages of AT&T

### One Truck versus Fleet of Trucks

AT&T doesn't rest its emergency preparedness on a single truck. Rather, AT&T has over 86,000 vehicles in their fleet, making AT&T the largest commercial fleet in the United States – larger than UPS. The AT&T fleet is in place, and has been demonstrated in response efforts to restore State of Alabama Emergency services. This has been demonstrated both on a day to day level as well as in emergency conditions. Because the fleet was in place, AT&T was not dependent on moving vehicles from other commitments, customer tours or other distractions to being on site when needed.

### AT&T Labs

Throughout the years, AT&T Labs remained an innovator. Our inventors pioneered new technologies and developed promising new products and services. These innovations range from IP network management and optical technology to automatic speech recognition and next generation text-to-speech products.

AT&T Labs has a rich heritage of innovation. Since 1901, our researchers and engineers developed some of the world's major technological inventions, including the transistor, the creation of the field of Information Theory, the solar cell, and the communications satellite. Today, our teams of technologists continue to invent technologies that enable AT&T to bring a new generation of universal network and communications services. We remain committed to developing state-of-the-art communications technologies that enable seamless, easy-to-use, high quality and affordable communications — anytime, anywhere.

In conclusion, AT&T is best able to support the State of Alabama in their pursuit to migrate to Next Generation 911. AT&T is the most reliable, most financially stable, has the resources, has the experience, has the network, and has the service and support to deliver Alabama the best Emergency Services network for the long haul.

### Personalized Support

Because we understand the importance of personalized service, we give you an account team of specialists to design and implement your new solution. You'll receive ongoing, coordinated support from your account team for all of your AT&T services.

**The Board's AT&T Account Team**

Name	Title	Phone Number	Email
Joshua Yeager	Account Manager	334-273-2130	<a href="mailto:jy014k@att.com">jy014k@att.com</a>
Dale Lunn	Sales Director-State of AL	334-273-2108	<a href="mailto:dl2797@att.com">dl2797@att.com</a>
Tullie Warren	Technical Sales Consultant-Public Safety	770-355-5022	<a href="mailto:tw0229@att.com">tw0229@att.com</a>
Sonya Sistrunk	Solution Consultant-Public Safety	601-824-5994	<a href="mailto:ss7315@att.com">ss7315@att.com</a>
Jean-Claude Rizk	Sales Director-Public Safety	404-769-0612	<a href="mailto:jr5503@att.com">jr5503@att.com</a>

We look forward to working with you to help you reach your goals.

## 2.2 TRANSMITTAL LETTER

The Transmittal Letter must address the following topics except those specifically identified as “optional.”

### 2.2.1 Agreement with Requirements listed in Section 1- General Instructions

The Respondent must explicitly acknowledge understanding of the general information presented in Section 1 and agreement with any requirements/conditions listed in Section 1.

**AT&T Response:**

AT&T has reviewed Section 1 and is in agreement with the requirements/conditions listed within.

### 2.2.2 Summary of Ability and Desire to Supply the Required Products or Services

The Transmittal Letter must briefly summarize the Respondent’s ability to supply the requested products and/or services that meet the requirements defined in Section 2.3 of this General Instructions portion of the RFP. The letter must also contain a statement indicating the Respondent’s willingness to provide the requested products and/or services subject to the terms and conditions set forth in the RFP including, but not limited to, mandatory contract clauses.

**AT&T Response:**

AT&T is also agreeing to supply the services requested in Section 2.3 as outlined in our responses to Technical Requirements Attachment D.

AT&T agrees to the terms and conditions set forth for all Mandatory contract clauses. AT&T will adhere to the net 35 terms currently in force under the Prompt Payment Act and AT&T’s existing Master Agreements with the State of Alabama. AT&T agrees to the other items set forth in the Sample Contract with some clarifications/suggested language (details provided in the attached Sample Contract) on items:

- |   |   |
|---|---|
| 4. Access to Records                      | 28. Licensing Standards                             |
| 5. Assignment; Successors                 | 32. Order of Precedence; Incorporation by Reference |
| 11. Condition of Payment                  | 35. Penalties/Interest/Attorney's Fees              |
| 12. Confidentiality of Board Information  | 38. Renewal Option                                  |
| 13. Continuity of Services                | 41. Taxes   |
| 16. Disputes                              | 43. Termination for Default                         |
| 20. Force Majeure                         | 45. Waiver of Rights                                |
| 25. Insurance                             | 46. Work Standards                                  |
| 27. Minority, Women, and Veteran Business | 47. Limitation of Liability                         |

### 2.2.3 Signature of Authorized Representative

A person authorized to commit the Respondent to its representations and who can certify that the information offered in the proposal meets all general conditions including the information requested in **Section 2.3.4**, must sign the Transmittal Letter.

In the Transmittal Letter, please indicate the principal contact for the proposal along with an address, telephone and fax number as well as an e-mail address, if that contact is different than the individual authorized for signature.

#### AT&T Response:

I, John Stuhrenberg, am the individual who is authorized to contractually obligate and negotiate the contract on behalf of AT&T. My contact information is listed in the letterhead above.

### 2.3.4 Integrity of Company Structure and Financial Reporting

This section must include a statement indicating that the CEO and/or CFO has taken personal responsibility for the thoroughness and correctness of any/all financial information supplied with this proposal. The particular areas of interest to the State in considering corporate responsibility include the following items: separation of audit functions from corporate boards and board members, if any, the manner in which the organization assures board integrity, and the separation of audit functions and consulting services. The Board will consider the information offered in this section to determine the responsibility of the Respondent.

The Sarbanes Oxley Act of 2002, H.R. 3763, is NOT directly applicable to this procurement; however, its goals and objectives may be used as a guide in the determination of corporate responsibility for financial reports.

**AT&T Response:**

The entity responding to the RFP is a wholly-owned subsidiary of AT&T Inc. AT&T Inc. complies with all applicable SEC and NYSE rules regarding corporate governance and financial reporting. Please see the AT&T Inc. 10-K, proxy statement, audit committee charter etc. located at [www.att.com](http://www.att.com) click on "About AT&T", then "Investor Relations". Please see the Acknowledgement of Management found on pages 76/91 of the 2014/2015 Annual Report ([http://www.att.com/Investor/ATT\\_Annual/2014/downloads/att\\_ar2014\\_annualreport.pdf](http://www.att.com/Investor/ATT_Annual/2014/downloads/att_ar2014_annualreport.pdf)).

## 2.2.4 Respondent Notification

Unless otherwise indicated in the Transmittal Letter, Respondents will be notified via e-mail.

It is the Respondent's obligation to notify the Board of any changes in any address that may have occurred since the origination of this solicitation. The Board will not be held responsible for incorrect vendor/contractor addresses.

**AT&T Response:**

The principle Contact for this RFP response is Joshua Yeager, AT&T Account Manager, 38 Washington Avenue 3rd Floor, Montgomery, AL 36104. Joshua can be reached at (334) 273-2130, and [jy014k@att.com](mailto: jy014k@att.com).

## 2.2.5 Other Information

This item is optional. Any other information the Respondent may wish to briefly summarize will be acceptable.

**AT&T Response:**

AT&T would like to propose the following optional solutions to the Board: Smart911 and ECaTS.

## Connecting with AT&T – Key Benefits to the State of Alabama

### Experience

- No vendor has more experience with regards to Public Safety as AT&T has been involved since the beginning. AT&T has over 34 years' experience installing, maintaining and hosting 9-1-1 call centers, 9-1-1 databases and 9-1-1 networks
- AT&T has implemented i3 ESInets successfully on both a county and statewide basis
- AT&T serves 3,800 PSAP's and is the leading provider of 9-1-1 Services across the United States
- We know Alabama Public Safety – We currently serve most of the PSAPs in Alabama from 5 existing 911 tandems.
- AT&T has dedicated Public Safety Sales, Support and Installation organizations to support this solution.
- The AT&T Public Safety Group is national, with dedicated organizations to support the sales, engineering, service management, project management, product management, lifecycle management, and customer care for Next Gen 9-1-1 Services.

## AT&T Smart 911 – Key Benefits for the State of Alabama

- Instantly and automatically delivers potentially life-saving data available on unresponsive or incommunicative callers to telecommunicator's desktop
- Immediate identification of important dispatching details such as the need for special equipment, a hidden driveway, or known medical condition
- Citizen provided data that is managed to ensure it is valid, accurate, and up-to-date
- Accurate physical addresses on mobile phones
- Ability to re-bid the location of a mobile caller, even in dropped-call or call-back scenarios
- Does not affect existing call routing or handling processes
- Works on all phone types (mobile, landline, VoIP) without a special download or plan
- Rapid and error-free delivery of rich content directly to first responders in the field who have mobile data access

- Enhanced community outreach and communication through Smart911's comprehensive marketing program
- Multilingual citizen registration
- 24 x 7 x 365 support
- Fully geo-redundant and secure.
- Pricing included in **Appendix A1**

## ECaTS – Key Benefits for the State of Alabama

ECaTS is a Public Safety Intelligence and analytics reporting platform developed exclusively for the 9-1-1 industry providing secure, real-time analytics and Public Safety Intelligence reporting with one simple click.

ECaTS is for:

- Public Safety Administrators to intelligently manage
- States to ensure vendors are
- complying with FCC and adopted
- NENA standards.
- Counties, cities, and regions to deploy and manage ER resources effectively
- PSAP managers for staffing and training requirements and
- Manage operations effectively

Benefits:

- ECaTS brings you the power of
- Statisticians and Business Intelligence
- consultants just a phone call away
- Brings the power of decision making
- on Public Safety to the city, county,
- region, and state
- With ECaTS you can access your 911
- information from your laptop,
- iPad or phone

- Gives the state objective information to
- manage all public safety vendors

Pricing included in **Appendix A2**.



675 Peachtree Street NW  
Atlanta, GA 30375  
www.att.com

John Stuhrenberg  
VP Government & Education Solutions  
Office: (404) 927-7020  
john.stuhrenberg@att.com

March 4, 2016

Alabama 9-1-1 Board  
Reference: AL-NG911-RFP-16-001  
1 Commerce St  
Suite 610  
Montgomery, AL 36104

Dear Alabama 911 Board:

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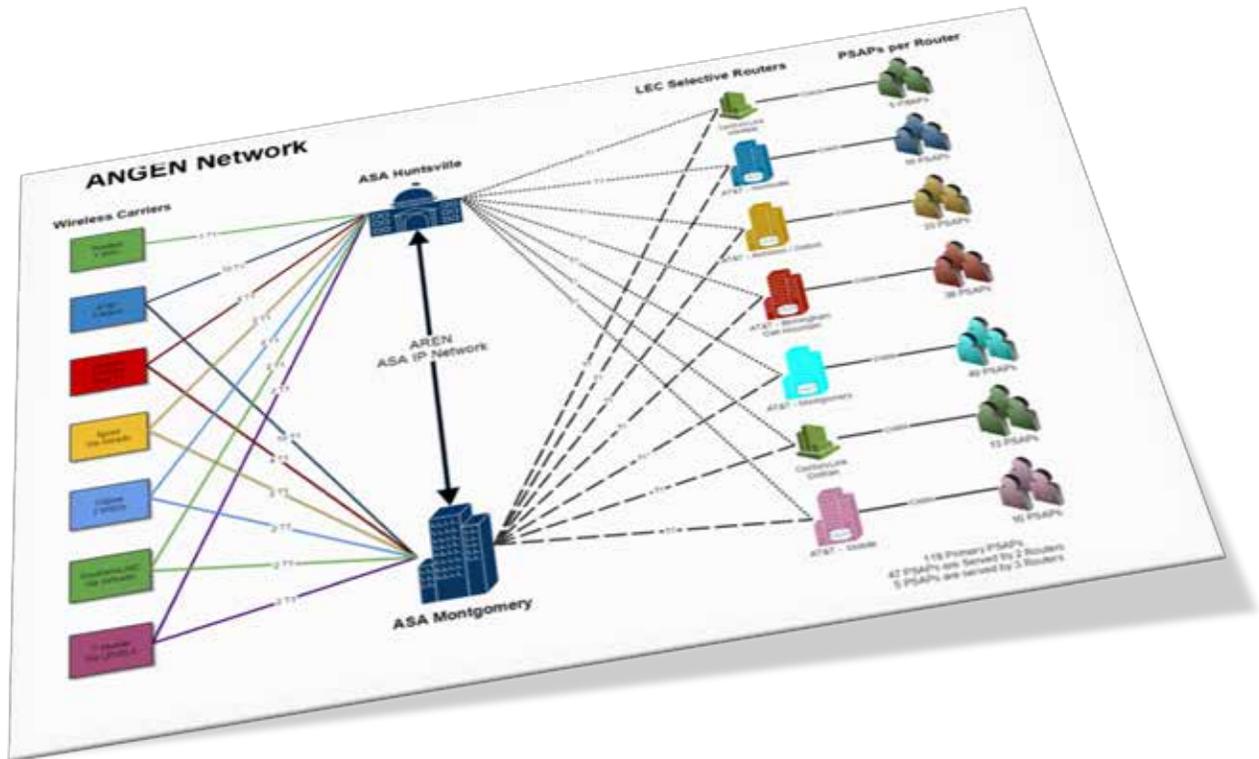
As you evaluate our response, please note that AT&T can be a single source for all of your communication and networking needs. Whether for voice or data services—or the management of your entire network—AT&T has the resources to meet your requirements.

We look forward to working with the Alabama 911 Board on this important initiative. I'll follow up with you soon to discuss our proposed solution.

Sincerely,

A handwritten signature in black ink, appearing to read "John H. Stuhrenberg". The signature is stylized with overlapping loops and a long horizontal stroke at the end.

John H. Stuhrenberg  
Vice President, Government and Education Solutions, East



**ALABAMA 9-1-1 BOARD**  
**Next Generation 911 Systems and Services RFP**  
**AL-NG911-RFP-16-001**

**Sections 1, 2, and 3 – GENERAL INSTRUCTIONS**

1-20-2016

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## SECTION 1 GENERAL INSTRUCTIONS

The Board reserves the right to accept or reject, in whole or part, any and all Proposals and to waive informalities.

Proposals to be binding for two-hundred and forty (240) days following the Proposal opening date.

### AT&T Response:

AT&T has read, understands, and complies.

### 1.1 RFP OUTLINE

The outline of this RFP document is described below:

Section	Description
<b>Section 1 – General Information and Requested Products or Services</b>	This section provides an overview of the RFP, general timelines for the process, and a summary of the products/services being solicited by the Board via this RFP
<b>Section 2 – Proposal Preparation Instructions</b>	This section provides instructions on the format and content of the RFP including a Letter of Transmittal, Business Proposal, Technical Proposal, and a Cost Proposal
<b>Section 3 – Proposal Evaluation Criteria</b>	This sections discusses the evaluation criteria to be used to evaluate respondents' proposals
<b>Attachment A</b>	Sample Contract
<b>Attachment B</b>	Business Proposal Template
<b>Attachment C</b>	Cost Proposal Template
<b>Attachment D</b>	Technical Proposal Template
<b>Attachment E</b>	Q&A Template
<b>Attachment F</b>	Letter of Intent (see note below)*

#### \*NOTE: LETTER OF INTENT

Each Respondent is requested to provide a letter of intent indicating their intention to bid on this project. This letter must be on company letterhead and signed by the Respondent's authorized representative. The letter of intent may be emailed to Leah Missildine (leah@al911board.com).

## AT&T Response:

AT&T has read, understands, and complies.

## 1.2 QUESTION/INQUIRY PROCESS

All questions/inquiries regarding this RFP must be submitted in writing by the deadline of **3:00 p.m. Central Time** on **2/19/2016**. Questions/Inquiries may be submitted in **Attachment E, Q&A Template**, via email to [leah@al911board.com](mailto:leah@al911board.com) and must be received by the time and date indicated above.

Following the question/inquiry due date, the State will compile a list of the questions/inquiries submitted by all Respondents. The responses will be posted according to the RFP timetable established in **Section 1.16**. The question/inquiry and answer link will become active after responses to all questions have been compiled. Only answers submitted will be considered official and valid by the Board. No Respondent shall rely upon, take any action, or make any decision based upon any verbal communication with any Board employee.

**Inquiries are not to be directed to any staff member of the Board. Such action may disqualify Respondent from further consideration for a contract resulting from this RFP.**

If it becomes necessary to revise any part of this RFP, or if additional information is necessary for a clearer interpretation of provisions of this RFP prior to the due date for proposals, an addendum will be issued. If such addenda issuance is necessary, the Board may extend the due date and time of proposals to accommodate such additional information requirements, if required.

## AT&T Response:

AT&T has read, understands, and complies.

## 1.3 DUE DATE FOR PROPOSALS

All proposals must be received at the address below by the Board no later than **3:00 p.m. Central Time** on **[3/4/2016]**. Each Respondent must submit **one original hard-copy** (marked "Original") and **one hard-copy** (marked "Copy"), **one original CD-ROM or USB drive (marked "Original") and seven (7) complete copies on SEPERATE CD-ROM/USB drives** of the proposal, including the **Transmittal Letter** and other related documentation as required in this RFP. The **original CD-ROM/USB Drive** will be considered the official response in evaluating responses for scoring and protest resolution. **The respondent's proposal response on this CD/USB drive may be posted on the AL911 Board Website, if recommended for selection.** Each copy of the proposal must follow the format indicated in **Section Two** of this document. Unnecessarily elaborate brochures or other presentations, beyond those necessary to present a complete and effective proposal, are not desired. All proposals must be addressed to:

Alabama 9-1-1 Board  
Reference: AL-NG911-RFP-16-001  
1 Commerce ST  
Suite 610  
Montgomery, AL 36104

**If you hand-deliver solicitation responses:** Proposals will be hand delivered to the office of the Alabama 9-1-1 Board, 1 Commerce Street, Suite 610, Montgomery, AL 36104, during regular business hours, which are Monday through Friday, 8:00 a.m. – 4:30 p.m. Central Time. Due to security measures within the building, place a phone call to the office at 334-440-7911 no later than forty-eight (48) hours prior to planned hand-delivery time to arrange contact with a Board employee.

**If you ship or mail solicitation responses:** United States Postal Express and Certified Mail are both delivered to:

Alabama 9-1-1 Board  
Reference: AL-NG911-RFP-16-001  
1 Commerce ST  
Suite 610  
Montgomery AL, 36104

It is the responsibility of the Respondent to make sure that solicitation responses are received on or before the designated time and date. Late submissions will not be accepted.

Regardless of delivery method, all proposal packages must be **sealed** and clearly marked with the RFP number, due date, and time due. Unsealed bids will not be accepted. Any proposal not received by the due date and time will not be considered. Any late proposals will be returned, unopened, to the Respondent upon request. All rejected proposals not claimed within 30 days of the proposal due date will be destroyed.

No more than one proposal per Respondent may be submitted.

Neither the State nor the Board accepts any obligations for costs incurred by Respondents in anticipation of being awarded a contract.

#### **AT&T Response:**

AT&T has read, understands, and complies.

#### **1.4 PRE-PROPOSAL CONFERENCE**

A mandatory pre-proposal conference will be held on **[2-10-2015]** at **[1 Commerce ST, Montgomery, AL 36104]**. While the intent of the pre-bid is on-site participation, participation can include attendance via a conference bridge. Specific conference bridge information will be provided in an addendum to this RFP.

At this conference, potential respondents may ask questions about the RFP and the RFP process. Respondents are reminded that no answers issued verbally at the conference are binding on the State or the Board and any information provided at the conference, unless it is later issued in writing, also is not binding on the Board.

**AT&T Response:**

AT&T has read, understands, and complies.

## 1.5 MODIFICATION OR WITHDRAWAL OF OFFERS

Modifications to responses to this RFP may only be made in the manner and format consistent with the submittal of the original response, acceptable to the Board clearly identified as a modification.

The Respondent's authorized representative may withdraw the proposal, in person, prior to the due date. Proper documentation and identification will be required before the Procurement Division will release the withdrawn proposal. The authorized representative will be required to sign a receipt for the withdrawn proposal.

Modification to, or withdrawal of, a proposal received by the Procurement Division after the exact hour and date specified for receipt of proposals will not be considered.

**AT&T Response:**

AT&T has read, understands, and complies.

## 1.6 PRICING

Pricing on this RFP must be firm and remain open for a period of not less than **240 days** from the proposal due date. Any attempt to manipulate the format of the document, attach caveats to pricing, or submit pricing that deviates from the format provided in **Attachment C** will put your proposal at risk.

Please refer to the Cost Proposal sub-section under **Section 2** for a detailed discussion of the proposal pricing format and requirements.

**AT&T Response:**

AT&T has read, understands, and complies.

## 1.7 PROPOSAL CLARIFICATIONS AND DISCUSSIONS, AND CONTRACT DISCUSSIONS

The Board reserves the right to request clarifications on proposals submitted to the Board. The Board also reserves the right to conduct proposal discussions, either oral or written, with

Respondents. These discussions could include request for additional information, request for cost or technical proposal revision, etc. Additionally, in conducting discussions, the Board may use information derived from proposals submitted by competing respondents only if the identity of the respondent providing the information is not disclosed to others. The Board will provide equivalent information to all respondents which have been chosen for discussions. Discussions, along with negotiations with responsible respondents may be conducted for any appropriate purpose.

A sample contract is provided in **Attachment A**. Any requested changes to the sample contract **must be submitted** with your response (See **Section 2.3.5** for details). The Board reserves the right to reject any of these requested changes. It is the Board's expectation that any material elements of the contract will be substantially finalized prior to contract award.

#### AT&T Response:

AT&T has read, understands, and complies.

### 1.8 BEST AND FINAL OFFER

The Board will ask for best and final offers from those Respondents determined by the Board to be reasonably viable for contract award.

Following evaluation of the best and final offers, the Board may select for final contract negotiations/execution of the solutions that are most advantageous to the Board, considering cost and the evaluation criteria in this RFP.

#### AT&T Response:

AT&T has read, understands, and complies.

### 1.9 REFERENCE SITE VISITS

The Board may request a site visit to a Respondent's working support center to aid in the evaluation of the Respondent's proposal.

#### AT&T Response:

AT&T has read, understands, and complies with explanation.

AT&T will be pleased to answer any questions regarding the provisioning of the services requested in the RFP; however, AT&T would like to better understand why a site visit to AT&T facilities would be useful to the Customer. For security and policy reasons, AT&T does not typically host site visits of its network facilities to third parties. Accordingly, once AT&T understands the Customer's specific issues, AT&T will work with the Customer to find an alternative way to address these concerns.

Further, such access right shall be subject to and limited by AT&T's reasonable policies and procedures pertaining to access to AT&T's facilities.

#### 1.10 TYPE AND TERM OF CONTRACT

The Board intends to sign a contract with one or more Respondent(s) to fulfill the requirements in this RFP.

The term of the contract shall be for a period of five (5) years from the date of contract execution. There may be five one-year renewals for a total of five (5) additional years at the Board's option.

##### **AT&T Response:**

AT&T has read, understands, and complies with explanation. AT&T's proposal hereunder is a direct reflection of the entire scope of work as presented here, as of the date of submission. Acceptance of only part of the quote may require mutual agreement/adjustment to the final configuration, subsequent pricing and implementation schedule.

#### 1.11 CONFIDENTIAL INFORMATION

Respondents are advised that materials contained in proposals are subject to the Alabama Public Records Law (Sec. 36-12-40 Ala. Code 1975, as amended) and the Alabama Bid Law (Sec. 41-16-24 Ala. Code 1975, as amended) and after the contract award, the entire RFP file may be viewed and copied by any member of the public, including news agencies and competitors. Prices are not confidential information.

##### **AT&T Response:**

AT&T respectfully requests that information in this document be held confidential by Customer, to the extent allowed under applicable law. AT&T also acknowledges the addition of Addendum 2 and has incorporated into the addendum into the AT&T response. AT&T has read, understands, and complies.

#### 1.12 TAXES

Proposals should not include any tax from which the Board is exempt.

##### **AT&T Response:**

AT&T has read, understands, and complies.

### 1.13 SECRETARY OF STATE REGISTRATION

If awarded the contract, the Respondent will be required to register, and be in good standing, with the Secretary of State. The registration requirement is applicable to all limited liability partnerships, limited partnerships, corporations, S-corporations, nonprofit corporations and limited liability companies. Information concerning registration with the Secretary of State may be obtained by contacting:

Secretary of State of Alabama  
Voice: 334-242-5324  
Fax: 334-240-3138

Physical Address:  
Alabama State House  
11 South Union Street, Suite 119  
Montgomery, AL 36130

Mailing Address:  
P.O. Box 5616  
Montgomery, AL 36103-5616

#### AT&T Response:

AT&T has read, understands, and complies. AT&T is in good standing with the Secretary of State of Alabama.

### 1.14 COMPLIANCE CERTIFICATION

Responses to this RFP serve as a representation that it has no current or outstanding criminal, civil, or enforcement actions initiated by the State, and it agrees that it will immediately notify the State of any such actions. The Respondent also certifies that neither it nor its principals are presently in arrears in payment of its taxes, permit fees or other statutory, regulatory or judicially required payments to the State. The Respondent agrees that the State may confirm, at any time, that no such liabilities exist, and, if such liabilities are discovered, that Board may bar the Respondent from contracting with the Board, cancel existing contracts, withhold payments to setoff such obligations, and withhold further payments or purchases until the entity is current in its payments on its liability to the State and has submitted proof of such payment to the State.

#### AT&T Response:

In the normal course of business, AT&T, like other large companies, may be involved in a variety of legal proceedings. Our most recent 10-Q filed with the Securities and Exchange Commission, which addresses pending litigation in the Other Business Matters section can be found in the investor relations section of our website at [http://phx.corporate-ir.net/phoenix.zhtml?c=113088&p=irol-sec&control\\_selectgroup=Quarterly%20Filings](http://phx.corporate-ir.net/phoenix.zhtml?c=113088&p=irol-sec&control_selectgroup=Quarterly%20Filings).

The 10-K is also found in the investor relations section of our website at [http://phx.corporate-ir.net/phoenix.zhtml?c=113088&p=irol-sec&control\\_selectgroup=Annual%20Filings](http://phx.corporate-ir.net/phoenix.zhtml?c=113088&p=irol-sec&control_selectgroup=Annual%20Filings).

To the best of our knowledge, there are no suits pending that would materially impair us from meeting our obligations or contracted duties.

AT&T has read, understands, and complies.

### 1.15 AMERICANS WITH DISABILITIES ACT

The Respondent specifically agrees to comply with the provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 *et seq.* and 47 U.S.C. 225).

#### AT&T Response:

AT&T has read, understands, and complies.

### 1.16 SUMMARY OF RFP MILESTONES

The following timeline is only an illustration of the RFP process. The dates associated with each step are not to be considered binding. Due to the unpredictable nature of the evaluation period, these dates are commonly subject to change. At the conclusion of the evaluation process, all Respondents will be informed of the evaluation team's findings.

#### Key RFP Dates

Activity	Date
Issue of RFP	1-20-2016
Pre-Proposal Conference	2-10-2016
Deadline to Submit Written Questions	2-19-2016
Response to Written Questions/RFP Amendments	2-26-2016
Submission of Proposals	3-4-2015
<b><i>The dates for the following activities are target dates only. These activities may be completed earlier or later than the date shown.</i></b>	
Proposal Evaluation	March – May 2016
Proposal Discussions/Clarifications (if necessary)	3-16-2016
Oral Presentations (if necessary)	April 2016

Activity	Date
Demonstration Evaluation (if necessary)	May 2016
Best and Final Offers (if necessary)	May 2016
RFP Award Recommendation	June 2016
Board Contract Review	TBD
Board Contract Approval	TBD

**AT&T Response:**

AT&T has read, understands, and complies.

## SECTION 2 PROPOSAL PREPARATION INSTRUCTIONS

### 2.1 GENERAL

To facilitate the timely evaluation of proposals, a standard format for proposal submission has been developed and is described in this section. All Respondents are required to format their proposals in a manner consistent with the guidelines described below:

- 1) Each Section and requirement must be addressed in the Respondent's proposal.
- 2) The Transmittal Letter must be in the form of a letter.
- 3) The business and technical proposals must be organized under the specific section titles as listed below.
- 4) The electronic copies of the proposal submitted via CD-ROM/USB drive should be organized to mirror the sections below and the attachments.
- 5) Each item, i.e. Transmittal Letter, Business Proposal, Technical Proposal, Cost Proposal, etc., must be separate stand-alone electronic files on the CD-ROM/USB drive. **Please do not submit your proposal as one large file.**
- 6) Whenever possible, please submit all attachments in their original format as provided in the RFP package.

#### AT&T Response:

AT&T has read, understands, and complies.

### 2.2 TRANSMITTAL LETTER

**The Transmittal Letter must address the following topics except those specifically identified as "optional."**

#### AT&T Response:

AT&T has read, understands, and complies.

#### 2.2.1 Agreement with Requirements listed in Section 1-General Instructions

The Respondent must explicitly acknowledge understanding of the general information presented in Section 1 and agreement with any requirements/conditions listed in Section 1.

#### AT&T Response:

AT&T agrees as and to the extent responded by AT&T in its Response to this RFP. AT&T has read, understands, and complies.

## 2.2.2 Summary of Ability and Desire to Supply the Required Products or Services

The Transmittal Letter must briefly summarize the Respondent's ability to supply the requested products and/or services that meet the requirements defined in **Section 2.3** of this General Instructions portion of the RFP. The letter must also contain a statement indicating the Respondent's willingness to provide the requested products and/or services subject to the terms and conditions set forth in the RFP including, but not limited to, mandatory contract clauses.

### AT&T Response:

AT&T agrees as and to the extent responded by AT&T in its Response to this RFP. AT&T has read, understands, and complies.

## 2.2.3 Signature of Authorized Representative

A person authorized to commit the Respondent to its representations and who can certify that the information offered in the proposal meets all general conditions including the information requested in **Section 2.3.4**, must sign the Transmittal Letter.

**In the Transmittal Letter, please indicate the principal contact for the proposal along with an address, telephone and fax number as well as an e-mail address, if that contact is different than the individual authorized for signature.**

### AT&T Response:

AT&T has read, understands, and complies with included Transmittal Letter.

## 2.2.4 Respondent Notification

Unless otherwise indicated in the Transmittal Letter, Respondents will be notified via e-mail.

It is the Respondent's obligation to notify the Board of any changes in any address that may have occurred since the origination of this solicitation. The Board will not be held responsible for incorrect vendor/contractor addresses.

### AT&T Response:

AT&T has read, understands, and complies.

## 2.2.5 Other Information

This item is optional. Any other information the Respondent may wish to briefly summarize will be acceptable.

## 2.3 ATTACHMENT B - BUSINESS PROPOSAL

The Business Proposal must address the following topics except those specifically identified as “optional.” **The Business Proposal Template is Attachment B.**

### AT&T Response:

AT&T has read, understands, and complies to the below subsections.

#### 2.3.1 General (optional)

This section of the business proposal may be used to introduce or summarize any information the Respondent deems relevant or important to the Board’s successful acquisition of the products and/or services requested in this RFP.

#### 2.3.2 Respondent’s Company Structure

The legal form of the Respondent’s business organization, the state in which formed (accompanied by a certificate of authority), the types of business ventures in which the organization is involved, and a chart of the organization are to be included in this section. If the organization includes more than one product division, the division responsible for the development and marketing of the requested products and/or services in the United States must be described in more detail than other components of the organization.

#### 2.3.3 Company Financial Information

This section must include the Respondent’s financial statement, including an income statement and balance sheet, for each of the five most recently completed fiscal years. The financial statements must demonstrate the Respondent’s financial stability. If the financial statements being provided by the Respondent are those of a parent or holding company, additional financial information should be provided for the entity/organization directly responding to this RFP.

### AT&T Response:

AT&T Corp. is wholly owned subsidiary of AT&T Inc. and a member of the AT&T Inc. family of companies. AT&T financial information is consolidated and reported at the AT&T Inc. level.

#### 2.3.4 Integrity of Company Structure and Financial Reporting

This section must include a statement indicating that the CEO and/or CFO has taken personal responsibility for the thoroughness and correctness of any/all financial information supplied with this proposal. The particular areas of interest to the State in considering corporate responsibility include the following items: separation of audit functions from corporate boards and board members, if any, the manner in which the organization assures board integrity, and the separation of audit functions and consulting

services. The Board will consider the information offered in this section to determine the responsibility of the Respondent.

The Sarbanes Oxley Act of 2002, H.R. 3763, is NOT directly applicable to this procurement; however, its goals and objectives may be used as a guide in the determination of corporate responsibility for financial reports.

#### AT&T Response:

The entity responding to the RFP is a wholly-owned subsidiary of AT&T Inc. AT&T Inc. complies with all applicable SEC and NYSE rules regarding corporate governance and financial reporting. Please see the AT&T Inc. 10-K, proxy statement, audit committee charter etc. located at [www.att.com](http://www.att.com) click on "About AT&T", then "Investor Relations". Please see the Acknowledgement of Management found on pages 76/91 of the 2014/2015 Annual Report: ([http://www.att.com/Investor/ATT\\_Annual/2014/downloads/att\\_ar2014\\_annualreport.pdf](http://www.att.com/Investor/ATT_Annual/2014/downloads/att_ar2014_annualreport.pdf)).

#### 2.3.5 Contract Terms/Clauses

A sample contract that the Board expects to execute with the successful Respondent(s) is provided in **Attachment A**. This contract contains both mandatory and non-mandatory clauses. Mandatory clauses are listed below and are non-negotiable. Other clauses are highly desirable. It is the Board's expectation that the final contract will be substantially similar to the sample contract provided in **Attachment A**.

In your Transmittal Letter please indicate acceptance of these mandatory contract terms. In this section, please review the rest of the contract and indicate your acceptance of the non-mandatory contract clauses. If a non-mandatory clause is not acceptable as worded, suggest specific alternative wording to address issues raised by the specific clause. If you require additional contract terms, please include them in this section. To reiterate, it is the Board's strong desire to not deviate from the contract provided in the attachment and as such the Board reserves the right to reject any and all requested changes.

The mandatory contract terms are as follows:

- Duties of Contractor, Rate of Pay, and Term of Contract
- Authority to Bind Contractor
- Compliance with Laws
- Drug-Free Workplace Provision and Certification
- Employment Eligibility
- Funding Cancellation
- Governing Laws
- Indemnification
- Non-Discrimination Clause
- Ownership of Documents and Materials
- Payments

- Penalties/Interest/Attorney's Fees
- Termination for Convenience
- Non-Collusion and Acceptance

Any or all portions of this RFP and any or all portions of the Respondents response may be incorporated as part of the final contract

#### AT&T Clarification:

AT&T is open to incorporating the terms of the RFP, as responded to by AT&T, into the final contract. However, the final negotiated contract documents would take precedence over the RFP and Response documents.

#### 2.3.6 References

The Respondent must include a list of at three (3) clients for whom the Respondent has provided products and/or services that are the same or similar to those products and/or services requested in this RFP.

Information provided should include the name, address, and telephone number of the client facility and the name, title, and phone/fax numbers of a person who may be contacted for further information.

#### AT&T Response:

AT&T has read, understands, and complies in the Business Proposal Document.

#### 2.3.7 Registration to do Business

##### Secretary of State

If awarded the contract, the Respondent will be required to be registered, and be in good standing, with the Secretary of State. The registration requirement is applicable to all limited liability partnerships, limited partnerships, corporations, S-corporations, nonprofit corporations and limited liability companies. The Respondent must indicate the status of registration, if applicable, in this section of the proposal.

#### AT&T Response:

AT&T has read, understands, and complies. AT&T is in good standing with the Secretary of State of Alabama.

#### 2.3.8 Authorizing Document

Respondent personnel signing the Transmittal Letter of the proposal must be legally authorized by the organization to commit the organization contractually. This section shall contain proof of such authority. A copy of corporate bylaws or a corporate

resolution adopted by the board of directors indicating this authority will fulfill this requirement.

**AT&T Response:**

AT&T has read, understands, and complies.

**2.3.9 Subcontractors**

The Respondent is responsible for the performance of any obligations that may result from this RFP, and shall not be relieved by the non-performance of any subcontractor.

Any Respondent's proposal must identify all subcontractors and describe the contractual relationship between the Respondent and each subcontractor. Either a copy of the executed subcontract or a letter of agreement over the official signature of the firms involved must accompany each proposal.

Any subcontracts entered into by the Respondent must be in compliance with all State statutes, and will be subject to the provisions thereof. For each portion of the proposed products or services to be provided by a subcontractor, the technical proposal must include the identification of the functions to be provided by the subcontractor and the subcontractor's related qualifications and experience.

The combined qualifications and experience of the Respondent and any or all subcontractors will be considered in the Board's evaluation. The Respondent must furnish information to the Board as to the qualifications of the subcontractor for performance, and any other data that may be required by the Board.

The Respondent must list any subcontractor's name, address and the state in which formed that are proposed to be used in providing the required products or services. The subcontractor's responsibilities under the proposal, anticipated dollar amount for subcontract, the subcontractor's form of organization, and an indication from the subcontractor of a willingness to carry out these responsibilities are to be included for each subcontractor.

**AT&T Response:**

AT&T has read, understands, and complies.

**2.3.10 General Information**

Each Respondent must enter your company's general information including contact information.

### AT&T Response:

AT&T has read, understands, and complies.

#### 2.3.11 Experience Serving State Governments

Each Respondent is asked to please provide a brief description of your company's experience in serving state governments and/or quasi-governmental accounts.

### AT&T Response:

AT&T has read, understands, and complies.

#### 2.3.12 Experience Serving Similar Clients

Each Respondent is asked to please describe your company's experience in serving clients of a similar size to the State that also had a similar scope. Please provide specific clients and detailed examples.

### AT&T Response:

AT&T has read, understands, and complies.

## 2.4 ATTACHMENT C - COST PROPOSAL

### **The Cost Proposal Template is Attachment C.**

The Cost Proposal must be submitted in the original format. Any attempt to manipulate the format of the Cost Proposal document, attach caveats to pricing, or submit pricing that deviates from the format provided in Attachment C will put your proposal at risk.

### **Cost Proposal Narrative**

The Respondent should provide a brief narrative (not longer than two pages) in support of each Cost Proposal item. The narrative should be focused on clarifying how the proposed prices correspond directly to the Respondent's Technical Proposal. For example, evaluators will expect detailed explanation of Maintenance and Support to correspond to Maintenance and Support items described in the Technical Proposal.

### **Cost Assumptions, Conditions and Constraints**

The Respondent should list and describe as part of its Cost Proposal any special cost assumptions, conditions, and/or constraints relative to, or which impact, the prices presented on the Cost Schedules. It is of particular importance to describe any assumptions made by the Respondent in the development of the Respondent's Technical Proposal that have a material impact on price. It is in the best interest of the Respondent to make explicit the assumptions, conditions, and/or constraints that underlie the values presented on the Cost Schedules.

Assumptions, conditions or constraints that conflict with the RFP requirements are not acceptable.

**AT&T Response:**

AT&T has read, understands, and complies. Upon written request from the Customer AT&T can provide a good faith estimate of the taxes, fees and surcharges for Customer that would apply as of today based on the services requested. Those amounts will be for illustrative purposes only, and subject to change.

## 2.5 ATTACHMENT D - TECHNICAL PROPOSAL

The Technical Proposal must be divided into the sections as described below. Every requirement made in each section must be addressed in the order given.

The same outline numbers must be used in the response. RFP language should not be repeated within the response. Where appropriate, supporting documentation may be referenced by a page and paragraph number. However, when this is done, the body of the technical proposal must contain a meaningful summary of the referenced material.

Any referenced document must be included as an appendix to the technical proposal with referenced sections clearly marked. If there are multiple references or multiple documents, these must be listed and organized for ease of use by the Board. **The Technical Proposal Template is Attachment D.**

**AT&T Response:**

AT&T has read, understands, and complies.

## SECTION 3 PROPOSAL EVALUATION

### 3.1 PROPOSAL EVALUATION PROCEDURE

The Board has selected a group to act as a proposal evaluation team. Subgroups of this team, consisting of one or more team members, will be responsible for evaluating proposals with regard to compliance with RFP requirements. All evaluation personnel will use the evaluation criteria stated in Section 3.2.

The AL911 Board or their designees will determine, in the exercise of their sole discretion, which proposals offer the best means of servicing the interests of the Board. The exercise of this discretion will be final.

The procedure for evaluating the proposals against the evaluation criteria will be as follows:

Each proposal will be evaluated for adherence to requirements on a pass/fail basis. Proposals that are incomplete or otherwise do not conform to proposal submission requirements may be eliminated from consideration.

Each proposal will be evaluated on the basis of the categories included in Section 3.2. A point score has been established for each category.

If technical proposals are close to equal, greater weight may be given to price.

Based on the results of this evaluation, the qualifying proposal determined to be the most advantageous to the Board, taking into account all of the evaluation factors, may be selected by the Board for further action, such as contract negotiations. If, however, the Board decides that no proposal is sufficiently advantageous to the Board, the Board may take whatever further action is deemed necessary to fulfill its needs. If, for any reason, a proposal is selected and it is not possible to consummate a contract with the Respondent, the Board may begin contract preparation with the next qualified Respondent or determine that no such alternate proposal exists.

#### AT&T Response:

AT&T has read, understands, and complies.

### 3.2 EVALUATION CRITERIA

Proposals will be evaluated based upon the proven ability of the Respondent to satisfy the requirements of the RFP in a cost-effective manner. Each of the evaluation criteria categories is described below with a brief explanation of the basis for evaluation in that category. The points associated with each category are indicated following the category name (total maximum points = 100). For further information, please reference the table below. If any one or more of the listed criteria on which the responses to this RFP will be evaluated are found to be inconsistent or incompatible with applicable federal laws, regulations or policies, the specific criterion or criteria

will be disregarded and the responses will be evaluated and scored without taking into account such criterion or criteria.

***Summary of Evaluation Criteria:***

<b>Criteria</b>	<b>Points</b>
1. Adherence to Mandatory Requirements	Pass/Fail
2. Management Assessment/Quality (Business and Technical Proposal)	70 points
3. Cost (Cost Proposal)	30 points
<b>Total</b>	<b>100 points</b>

All proposals will be evaluated using the following approach.

Step 1

In this step proposals will be evaluated only against Criteria 1 to ensure that they adhere to Mandatory Requirements. Any proposals not meeting the Mandatory Requirements will be disqualified.

Step 2

The proposals that meet the Mandatory Requirements will then be scored based on Criteria 2 ONLY. This scoring will have a maximum possible score of 70 points. All proposals will be ranked on the basis of their combined scores for Criteria 2 ONLY. This ranking will be used to create a “short list”. Any proposal not making the “short list” will not be considered for any further evaluation.

Step 2 may include one or more rounds of proposal discussions, oral presentations, clarifications, demonstrations, etc. focused on proposal elements.

Step 3

The short-listed proposals will then be evaluated based on the entirety of the evaluation criteria outlined in the table above.

If the Board conducts additional rounds of discussions and a best and final offer (BAFO) round which lead to changes in either the technical or cost proposal for the short listed Respondents, their scores will be recomputed.

The section below describes the different evaluation criteria.

### Adherence to Requirements – Pass/Fail

Respondents passing this category move to Phase 2 and proposal is evaluated for Management Assessment/Quality and Price.

Management Assessment/Quality – 70 points

Price – 30 points available

Cost scores will then be normalized to one another, based on the lowest cost proposal evaluated. The lowest cost proposal receives a total of 30 points. The normalization formula is as follows:

Respondent's Cost Score = (Lowest Cost Proposal / Total Cost of Proposal) X 30

The Board or their designees will determine, in the exercise of their sole discretion, which proposals offer the best means of servicing the interests of the Board. The exercise of this discretion will be final.

### AT&T Response:

AT&T has read, understands, and complies.

## Attachment A – Sample Contract Terms and Conditions

### CONTRACT FOR SERVICES

This Contract (“Contract”), entered into by and between the Alabama 911 Board (the “Board”) and \_\_\_\_\_ (the “Contractor”), is executed pursuant to the terms and conditions set forth herein. In consideration of those mutual undertakings and covenants, the parties agree as follows:

**1. Duties of Contractor.** The Contractor shall provide the following services relative to this Contract:

[Scope of services to be inserted here and as Appendices/Exhibits upon award of Contract]

**2. Consideration.** The Contractor shall be compensated for services performed under this Contract as follows:

[Fee information to be inserted upon award of Contract]

**3. Term.** This Contract shall be effective for a period of [\_\_TBD\_\_]. It shall commence on [\_\_TBD\_\_] and shall remain in effect through [\_\_TBD\_\_].

**4. Access to Records.** The Contractor and its subcontractors, if any, shall maintain all books, documents, papers, accounting records, and other evidence pertaining to all costs incurred and payments made under this Contract. They shall make such materials available at their respective offices at all reasonable times during this Contract, and for three (3) years from the date of final payment under this Contract, for inspection by the Board or its authorized designees. Copies shall be furnished at no cost to the Board if requested.

#### AT&T Response:

#### Audit Rights.

(a) Subject to AT&T’s reasonable security requirements and not more than once every twelve (12) months, Customer may, at its own expense, review AT&T’s relevant billing records for a period not to exceed the preceding 12 months, for the purpose of assessing the accuracy of AT&T’s invoices to Customer. Customer may employ such assistance, as it deems desirable to conduct such reviews, but may not employ the assistance of any entity that derives a substantial portion of its revenues from the provision of services that are substantially similar to the Services provided hereunder or any person who has previously made prohibited use of AT&T’s Confidential Information. Customer shall cause any person retained for this purpose to execute a non-disclosure agreement imposing substantially the same obligations of confidentiality as are set forth elsewhere in this Agreement. Such reviews shall take place at a time and place agreed upon by the parties. Customer’s normal

internal invoice reconciliation procedures shall not be considered a review of AT&T's relevant billing records for purposes of this Section.

- (b) AT&T shall promptly correct any billing error that is revealed in a billing review, including refunding any overpayment by Customer in the form of a credit as soon as reasonably practicable under the circumstances.
- (c) AT&T shall cooperate in any Customer billing review, providing AT&T billing records as reasonably necessary to verify the accuracy of AT&T's invoices. AT&T may redact from the billing records provided to Customer any information that reveals the identity or non-public information of other AT&T customers or other AT&T Confidential Information that is not relevant to the purposes of the review.

**5. Assignment; Successors.** The Contractor binds its successors and assignees to all the terms and conditions of this Contract. The Contractor shall not assign or subcontract the whole or any part of this Contract without the Board's prior written consent. The Contractor may assign its right to receive payments to such third parties as the Contractor may desire without the prior written consent of the Board, provided that the Contractor gives written notice (including evidence of such assignment) to the Board thirty (30) days in advance of any payment so assigned. The assignment shall cover all unpaid amounts under this Contract and shall not be made to more than one party.

**AT&T Response:**

AT&T agrees to ensure that any subcontractor, which AT&T utilizes to provide performance under any definitive agreement that may be entered into between the parties in connection with the services proposed by AT&T in response to this RFP, agrees in writing to substantially the same terms and conditions that apply through this RFP to AT&T. However due to confidentiality requirements of our agreements with our subcontractors, AT&T may not be able to provide Customer with a copy of a particular subcontract.

**6. Assignment of Antitrust Claims.** As part of the consideration for the award of this Contract, the Contractor assigns to the Board all right, title and interest in and to any claims the Contractor now has, or may acquire, under state or federal antitrust laws relating to the products or services which are the subject of this Contract.

**AT&T Response:**

AT&T counter proposes and will agree to the following language, intended to accomplish the same thing with greater clarity: "Contractor hereby assigns to the Customer any and all antitrust claims for overcharges to the extent associated with the volume of products and services provided to Customer under any contract resulting from this RFP, when such claims arise under the antitrust laws of the United States, 15 U.S.C. Section 1, et seq. (1973), as amended, and the antitrust laws of the State of Alabama."

**7. Audits.** The Contractor acknowledges that it may be required to submit to an audit of funds paid through this Contract. Any such audit shall be conducted in accordance with Chapter 2A, Title 40 Ala. Code, 1975, and audit guidelines specified by the Board.

The Board considers the Contractor to be a “vendor” for purposes of this Contract. However, if required by applicable provisions of the Office of Management and Budget Circular A-133 (Audits of States, Local Governments, and Non-Profit Organizations), following the expiration of this Contract the Contractor shall arrange for a financial and compliance audit of funds provided by the Board pursuant to this Contract. Such audit is to be conducted by an independent public or certified public accountant and performed in accordance with industry best practice and applicable provisions of the Office of Management and Budget Circulars A-133 (Audits of States, Local Governments, and Non-Profit Organizations). The Contractor is responsible for ensuring that the audit and any management letters are completed and forwarded to the Board in accordance with the terms of this Contract. Audits conducted pursuant to this paragraph must be submitted no later than nine (9) months following the close of the Contractor’s fiscal year. The Contractor agrees to provide the Board an original of all financial and compliance audits. The audit shall be an audit of the actual entity, or distinct portion thereof that is the Contractor, and not of a parent, member, or Subsidiary Corporation of the Contractor, except to the extent such an expanded audit may be determined by the Board to be in the best interests of the Board. The audit shall include a statement from the Auditor that the Auditor has reviewed this Contract and that the Contractor is not out of compliance with the financial aspects of this Contract.

**AT&T Response:**

AT&T proposes the following language:

**Audit Rights.**

- (a) Subject to AT&T’s reasonable security requirements and not more than once every twelve (12) months, Customer may, at its own expense, review AT&T’s relevant billing records for a period not to exceed the preceding 12 months, for the purpose of assessing the accuracy of AT&T’s invoices to Customer. Customer may employ such assistance, as it deems desirable to conduct such reviews, but may not employ the assistance of any entity that derives a substantial portion of its revenues from the provision of services that are substantially similar to the Services provided hereunder or any person who has previously made prohibited use of AT&T’s Confidential Information. Customer shall cause any person retained for this purpose to execute a non-disclosure agreement imposing substantially the same obligations of confidentiality as are set forth elsewhere in this Agreement. Such reviews shall take place at a time and place agreed upon by the parties. Customer’s normal internal invoice reconciliation procedures shall not be considered a review of AT&T’s relevant billing records for purposes of this Section.
- (b) AT&T shall promptly correct any billing error that is revealed in a billing review, including refunding any overpayment by Customer in the form of a credit as soon as reasonably practicable under the circumstances.
- (c) AT&T shall cooperate in any Customer billing review, providing AT&T billing records as reasonably necessary to verify the accuracy of AT&T’s invoices. AT&T may redact from the billing records provided to Customer any information that reveals the identity or non-public information of other AT&T customers or other AT&T Confidential Information that is not relevant to the purposes of the review.

**8. Authority to Bind Contractor.** The signatory for the Contractor represents that he/she has been duly authorized to execute this Contract on behalf of the Contractor and has obtained all necessary or applicable approvals to make this Contract fully binding upon the Contractor when his/her signature is affixed, and accepted by the Board.

**9. Changes in Work.** The Contractor shall not commence any additional work or change the scope of the work until authorized in writing by the Board. The Contractor shall make no claim for additional compensation in the absence of a prior written approval and amendment executed by all signatories hereto. This Contract may only be amended, supplemented or modified by a written document executed in the same manner as this Contract.

**10. Compliance with Laws.**

- A. The Contractor shall comply with all applicable federal, state, and local laws, rules, regulations, and ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment or modification of any applicable state or federal statute or the promulgation of rules or regulations thereunder after execution of this Contract shall be reviewed by the Board and the Contractor to determine whether the provisions of this Contract require formal modification.
- B. The Contractor and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the Board as set forth in The Alabama Ethics Law Sections 36-25-1 et seq. Ala. Code, 1975, as amended and the regulations promulgated thereunder. If the Contractor is not familiar with these ethical requirements, the Contractor should refer any questions to the Alabama State Ethics Commission. If the Contractor or its agents violate any applicable ethical standards, the Board may, in its sole discretion, terminate this Contract immediately upon notice to the Contractor. In addition, the Contractor may be subject to penalties under The Alabama Ethics Law at Section 36-25-27 Ala. Code, 1975, as amended and under any other applicable laws.
- C. The Contractor certifies by entering into this Contract that neither it nor its principal(s) is presently in arrears in payment of taxes, permit fees or other statutory, regulatory or judicially required payments to the Board or the State of Alabama. The Contractor agrees that any payments currently due to the Board or the State of Alabama may be withheld from payments due to the Contractor. Additionally, further work or payments may be withheld, delayed, or denied and/or this Contract suspended until the Contractor is current in its payments and has submitted proof of such payment to the Board.
- D. The Contractor warrants that it has no current, pending or outstanding criminal, civil, or enforcement actions initiated by the Board or the State of Alabama and agrees that it will immediately notify the Board of any such actions. During the term of such actions, the Contractor agrees that the Board may delay, withhold, or deny work under any supplement, amendment, change order or other contractual device issued pursuant to this Contract.
- E. If a valid dispute exists as to the Contractor's liability or guilt in any action initiated by the Board or the State of Alabama or any affiliated agencies, and the Board decides to delay, withhold, or deny work to the Contractor, the Contractor may request that it be allowed to continue, or receive work, without delay. The Contractor must submit, in writing, a request for review to the Board.

A determination by the Board shall be binding on the parties. Any payments that the Board may delay, withhold, deny, or apply under this section shall not be subject to penalty or interest.

F. The Contractor warrants that the Contractor and its subcontractors, if any, shall obtain and maintain all required permits, licenses, registrations, and approvals, and shall comply with all health, safety, and environmental statutes, rules, or regulations in the performance of work activities for the Board. Failure to do so may be deemed a material breach of this Contract and grounds for immediate termination and denial of further work with the Board.

G. The Contractor affirms that, Contractor is properly registered and owes no outstanding reports to the Alabama Secretary of State.

**11. Condition of Payment.** All services provided by the Contractor under this Contract must be performed to the Board's reasonable satisfaction and in accordance with all applicable federal, state, local laws, ordinances, rules and regulations. The Board shall not be required to pay for work found to be unsatisfactory, inconsistent with this Contract, or performed in violation of and federal, state or local statute, ordinance, rule or regulation.

**AT&T Response:**

AT&T does not agree to a subjective satisfaction standard for acceptance, but instead proposes that the parties develop mutually agreeable objective acceptance test criteria under which the services would be accepted.

**12. Confidentiality of Board Information.** The Contractor understands and agrees that data, materials, and information disclosed to the Contractor may contain confidential and protected information. The Contractor covenants that data, material, and information gathered, based upon or disclosed to the Contractor for the purpose of this Contract will not be disclosed to or discussed with third parties without the prior written consent of the Board.

The parties acknowledge that the services to be performed by Contractor for the Board under this Contract may require or allow access to data, materials, and information containing Personally Identifiable Information (defined as any information that identifies or can be used to identify, contact or locate the person to whom such information pertains or from which identification or contact information on an individual can be derived). If any Social Security number(s) is/are disclosed by Contractor, Contractor agrees to pay the cost of the notice of disclosure of a breach of the security of the system in addition to any other claims and expenses for which it is liable under the terms of this contract.

**AT&T Response:**

AT&T Takes exception to this Section 12 and proposes the following:

**12. CONFIDENTIAL INFORMATION**

**12.1 Confidential Information.** Confidential Information means: (a) information the parties or their Affiliates share with each other in connection with this Agreement or in anticipation of providing Services under this Agreement (including pricing or other proposals), but only to the

extent identified as Confidential Information in writing; and (b) except as may be required by applicable law or regulation, the terms of this Agreement.

**12.2 Obligations.** A disclosing party's Confidential Information will, for a period of 3 years following its disclosure to the other party (except in the case of software, for which the period is indefinite): (a) not be disclosed, except to the receiving party's employees, agents and contractors having a need-to-know (but only if such agents and contractors are not direct competitors of the other party and agree in writing to use and disclosure restrictions as restrictive as this Section 12) or to the extent authorized to be revealed by law, governmental authority or legal process (but only if such disclosure is limited to that which is so authorized and prompt notice is provided to the disclosing party to the extent practicable and not prohibited by law, governmental authority or legal process); (b) be held in confidence; and (c) be used only for purposes of using the Services, evaluating proposals for new services or performing this Agreement (including in the case of AT&T to detect fraud, to check quality and to operate, maintain and enhance the network and Services).

**12.3 Exceptions.** The restrictions in this Section 12 will not apply to any information that: (a) is independently developed by the receiving party without use of the disclosing party's Confidential Information; (b) is lawfully received by the receiving party free of any obligation to keep it confidential; or (c) becomes generally available to the public other than by breach of this Agreement.

**12.4 Privacy.** Each party is responsible for complying with the privacy laws applicable to its business. AT&T shall require its personnel, agents and contractors around the world who process Customer Personal Data to protect Customer Personal Data in accordance with the data protection laws and regulations applicable to AT&T's business. If Customer does not want AT&T to comprehend Customer data to which it may have access in performing Services, Customer must encrypt such data so that it will be unintelligible. Customer is responsible for obtaining consent from and giving notice to its Users, employees and agents regarding Customer's and AT&T's collection and use of the User, employee or agent information in connection with a Service. Customer will only make accessible or provide Customer Personal Data to AT&T when it has the legal authority to do so. Unless otherwise directed by Customer in writing, if AT&T designates a dedicated account representative as Customer's primary contact with AT&T, Customer authorizes that representative to discuss and disclose Customer's customer proprietary network information to any employee or agent of Customer without a need for further authentication or authorization.

**13. Continuity of Services.**

- A. The Contractor recognizes that the service(s) to be performed under this Contract are vital to the Board and the State of Alabama and must be continued without interruption and that, upon Contract expiration or termination, a successor, either the Board or another contractor, may continue them. The Contractor agrees to:
1. Furnish phase-in training; and
  2. Exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.

- B. The Contractor shall, upon the Board's written notice:
1. Continue to provide services during the transition of services period for up to six (6) months after this Contract is terminated or expires; and
  2. Negotiate in good faith a plan with the Board and any successor to determine the nature and extent of phase-in, phase-out services necessary to transition operation. The plan shall specify a training program and a date for transferring responsibilities for each of the service areas provided, and shall be subject to the Board's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this Contract are maintained at the required level of proficiency.
- C. The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this Contract. The Contractor shall also disclose necessary personnel records and allow the successor to conduct on-site interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.

**AT&T Response:**

AT&T takes exception to this Section 13, as worded. AT&T agrees to furnish phase-in training and to exercise commercially reasonable best efforts and cooperation to effect an orderly and efficient transition to a successor. AT&T must retain the right to manage, train, and control its own employee resources. AT&T does not agree to disclose personnel records of AT&T employees and does not agree to release AT&T employees except as may be mutually agreed upon between the parties.

- D. The Contractor shall be reimbursed for reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations). Any costs eligible for reimbursement shall not exceed the monthly recurring cost being paid for the services provided under this contract at the time of contract expiration and as approved by the Board.

**14. Debarment and Suspension.**

A. The Contractor certifies by entering into this Contract that neither it nor its principals nor any of its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from entering into this Contract by any federal agency or by any department, agency or political subdivision of the State of Alabama. The term "principal" for purposes of this Contract means an officer, director, owner, partner, key employee or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor.

B. The Contractor certifies that it has verified the state and federal suspension and debarment status for all subcontractors receiving funds under this Contract and shall be solely responsible for any recoupment, penalties or costs that might arise from use of a

suspended or debarred subcontractor. The Contractor shall immediately notify the Board if any subcontractor becomes debarred or suspended, and shall, at the Board's request, take all steps required by the Board to terminate its contractual relationship with the subcontractor for work to be performed under this Contract.

**15. Default by Board.** If the Board, ninety (90) days after receipt of written notice, fails to correct or cure any material breach of this Contract, the Contractor may cancel and terminate this Contract and institute measures to collect monies due up to and including the date of termination.

**AT&T Response:**

AT&T takes exception to this Section 15 and has proposed our Termination terms at Section 43. We look forward to negotiating a mutually-agreeable terms with the State.

**16. Disputes.**

**A. SHOULD ANY DISPUTES ARISE WITH RESPECT TO THIS CONTRACT, THE CONTRACTOR AND THE BOARD AGREE TO ACT IMMEDIATELY TO RESOLVE SUCH DISPUTES. TIME IS OF THE ESSENCE IN THE RESOLUTION OF DISPUTES.**

B. The Contractor agrees that, the existence of a dispute notwithstanding, it will continue without delay to carry out all of its responsibilities under this Contract that are not affected by the dispute. Should the Contractor fail to continue to perform its responsibilities regarding all non-disputed work, without delay, any additional costs incurred by the Board or the Contractor as a result of such failure to proceed shall be borne by the Contractor, and the Contractor shall make no claim against the Board for such costs.

C. If a party to the Contract is not satisfied with the progress toward resolving a dispute, the party must notify in writing the other party of this dissatisfaction. Upon written notice, the parties have ten (10) working days, unless the parties mutually agree to extend this period, following the notification to resolve the dispute. If the dispute is not resolved within ten (10) working days, the parties shall submit the dispute, in compliance with the recommendations to the Attorney General, when considering settlement of such disputes, to utilize appropriate forms of alternate dispute resolution, including, but not limited to, mediation by or through the Attorney General's Office of Administrative Hearing or where appropriate, private mediators. If a party is not satisfied with the results of mediation, the dissatisfied party may submit the dispute to the Circuit Court of Montgomery County, Alabama.

D. The Board may withhold payments on disputed items pending resolution of the dispute. The unintentional nonpayment by the Board to the Contractor of one or more invoices not in dispute in accordance with the terms of this Contract will not be cause for the Contractor to terminate this Contract.

E. It is agreed that the terms and commitments contained herein shall not be constituted a debt of the State of Alabama in violation of Article XI, Section 213, of the Constitution of Alabama, 1901, as amended by Amendment No. 26. It is further agreed that if any provision of this contract shall contravene any statute or constitutional provision or amendment, either now in effect or which may, during the course of this contract, be enacted, then that conflicting provision of the contract shall be null and void.

**AT&T Response:**

AT&T takes exception to Section 16 D and proposes the following:

- D. Customer will not be required to pay charges for Services initially invoiced more than 6 months after close of the billing period in which the charges were incurred, except for calls assisted by an automated or live operator. If Customer disputes a charge, Customer will provide notice to AT&T specifically identifying the charge and the reason it is disputed within 6 months after the date of the invoice in which the disputed charge initially appears, or Customer waives the right to dispute the charge. The portion of charges in dispute may be withheld and will not be considered overdue until AT&T completes its investigation of the dispute, but Customer may incur late payment fees as otherwise set out herein. Following AT&T's notice of the results of its investigation to Customer, payment of all properly due charges and properly accrued late payment fees must be made within ten (10) business days. AT&T will reverse any late payment fees that were invoiced in error.

**17. Drug-Free Workplace Certification.** The Contractor hereby covenants and agrees to make a good faith effort to provide and maintain a drug-free workplace. The Contractor will give written notice to the Board within ten (10) days after receiving actual notice that the Contractor, or an employee of the Contractor in the State of Alabama, has been convicted of a criminal drug violation occurring in the workplace. False certification or violation of this certification may result in sanctions including, but not limited to, suspension of contract payments, termination of this Contract and/or debarment of contracting opportunities with the Board for up to three (3) years.

In addition to the provisions of the above paragraph, if the total amount set forth in this Contract is in excess of \$25,000.00, the Contractor certifies and agrees that it will provide a drug-free workplace by:

- A. Publishing and providing to all of its employees a statement notifying them that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
- B. Establishing a drug-free awareness program to inform its employees of (1) the dangers of drug abuse in the workplace; (2) the Contractor's policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; and (4) the penalties that may be imposed upon an employee for drug abuse violations occurring in the workplace;
- C. Notifying all employees in the statement required by subparagraph (A) above that as a condition of continued employment, the employee will (1) abide by the terms of the statement; and (2) notify the Contractor of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;
- D. Notifying the Board in writing within ten (10) days after receiving notice from an employee under subdivision (C)(2) above, or otherwise receiving actual notice of such conviction;

- E. Within thirty (30) days after receiving notice under subdivision (C)(2) above of a conviction, imposing the following sanctions or remedial measures on any employee who is convicted of drug abuse violations occurring in the workplace: (1) taking appropriate personnel action against the employee, up to and including termination; or (2) requiring such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state or local health, law enforcement, or other appropriate agency; and
- F. Making a good faith effort to maintain a drug-free workplace through the implementation of subparagraphs (A) through (E) above

**18. Employment Eligibility Verification.** As required by Alabama state law, the Contractor swears or affirms under the penalties of perjury that the Contractor does not knowingly employ an unauthorized alien. The Contractor further agrees that:

- A. The Contractor shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC §22-5-1.7-3. The Contractor is not required to participate should the E-Verify program cease to exist. Additionally, the Contractor is not required to participate if the Contractor is self-employed and does not employ any employees.
- B. The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien.
- C. The Contractor shall require his/her/its subcontractors, who perform work under this Contract, to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

The Board may terminate for default if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified by the Board.

**19. Employment Option.** If the Board determines that it would be in the Board's best interest to hire an employee of the Contractor, the Contractor will release the selected employee from any non-competition agreements that may be in effect. This release will be at no cost to the Board or the employee

**AT&T Response:**

AT&T takes exception to this provision.

**20. Force Majeure.** In the event that either party is unable to perform any of its obligations under this Contract or to enjoy any of its benefits because of natural disaster or decrees of governmental bodies not the fault of the affected party (hereinafter referred to as a "Force Majeure Event"), the party who has been so affected shall immediately give notice to the other party and shall do everything possible to resume performance. Upon receipt of such notice, all obligations under this Contract shall be immediately suspended. If the period of nonperformance exceeds thirty (30) days from the receipt of

notice of the Force Majeure Event, the party whose ability to perform has not been so affected may, by giving written notice, terminate this Contract.

**AT&T Response:**

AT&T requests that the language be modified to make clear that "payments of amounts due" is excluded from obligations that may be excused by force majeure, as well as to include labor strikes as a specific example for force majeure events.

**21. Funding Cancellation.** When the Board makes a written determination that funds are not authorized by statute or otherwise available to support continuation of performance of this Contract, this Contract shall be canceled. A determination by the Board that funds are not authorized or otherwise available to support continuation of performance shall be final and conclusive.

**22. Governing Law.** This Contract shall be governed, construed, and enforced in accordance with the laws of the State of Alabama, without regard to its conflict of laws rules. Suit, if any, must be brought in the Circuit Court of Montgomery County, Alabama.

**23. Indemnification.** The Contractor agrees to indemnify, defend, and hold harmless the Board, its agents, officials, and employees from all claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any, in the performance of this Contract. The Board shall not provide such indemnification to the Contractor.

**AT&T Response:**

As per the State's response to AT&T's Question #14, AT&T requests negotiation of this Indemnification clause to identify with more specificity the kinds of injury that would be subject to the clause as well as to address applicable standards of conduct." As the language is currently worded, there is no standard of care criteria that would trigger the obligation; nor is there a narrowing of the kinds of hard that may be indemnified against to tangible kinds of injury.

**24. Independent Contractor; Workers' Compensation Insurance.** The Contractor is performing as an independent entity under this Contract. No part of this Contract shall be construed to represent the creation of an employment, agency, partnership or joint venture agreement between the parties. Neither party will assume liability for any injury (including death) to any persons, or damage to any property, arising out of the acts or omissions of the agents, employees or subcontractors of the other party. The Contractor shall provide all necessary unemployment and workers' compensation insurance for the Contractor's employees, and shall provide the Board with a Certificate of Insurance evidencing such coverage prior to starting work under this Contract.

25. Insurance.

AT&T Response:

Please see below AT&T's responses to the State's proposed Insurance provisions as we can accommodate them.

The Contractor shall secure and keep in force during the term of this Contract the following insurance coverage, covering the Contractor for claims of bodily injury or property damage, including loss of use that arise out of or result from Contractor's negligent acts under this Contract:

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A. The Contractor and their subcontractors ( if any) shall secure and keep in force during the term of this Contract the following insurance coverages (if applicable) covering the Contractor for any and all claims of any nature which may in any manner arise out of or result from Contractor's performance under this Contract:

1. Commercial general liability, including contractual coverage, and products or completed operations coverage (if applicable), with liability limits of \$5,000,000 per occurrence and in the aggregate. The Board is to be included as an additional insured on a primary, non-contributory basis under the required coverage.

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Deleted: unless additional coverage is required

2. Automobile liability for owned, non-owned and hired autos with liability limits of \$5,000,000 per accident. The Board is to be included as an additional insured on a primary, non-contributory basis.

Deleted: named  
Deleted: for any liability arising directly or indirectly under or in connection with this Contract

3. Professional Liability, also known as Errors and Omissions Insurance, for those Contractors required to hold a professional license in Alabama with limits of \$700,000 claim or wrongful act and \$5,000,000 aggregate. This is coverage available to pay for liability arising out of the performance of professional or business related duties, with coverage tailored to the needs of the specific profession. Coverage for the benefit of the Board shall be renewed or an extended reporting period provided, together totaling a period of two (2) years after the date of service provided under this Contract.

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4. Fiduciary Liability would be required if the Contractor is responsible for the management and oversight of various employee benefit plans and programs such as pensions, profit-sharing and savings, among others. These contractors face potential claims for mismanagement brought by plan members. Limits should be no less than \$700,000 per cause of action and \$5,000,000 per occurrence.

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5. Valuable Papers coverage, available under an Inland Marine policy, is recommended when any plans, drawings, media, data, records, reports, billings and other documents are produced or used under this agreement. Insurance must have limits sufficient to pay for the re-creation and reconstruction of such records. Contractor may self insure this coverage.

6. The Contractor shall secure the appropriate Surety or Fidelity Bond(s) as required by applicable statutes.

7. The Contractor shall provide proof of such insurance coverage by tendering to the Board a certificate of insurance prior to the commencement of this Contract and proof of workers' compensation coverage meeting all statutory requirements. In addition, proof of an "all states endorsement" covering claims occurring outside Alabama is required if any of the services provided under this Contract involve work outside of Alabama.

B. The Contractor's insurance coverage must meet the following additional requirements:

- 1. The insurer must have a certificate of authority or other appropriate authorization to operate in the state in which the policy was issued.
- 2. Any deductible or self-insured retention amount or other similar obligation under the insurance policies shall be the sole obligation of the Contractor.
- 3. The duty to indemnify the Board under this Contract shall not be limited by the insurance required in this Contract.
- 4. The Contractor waives and agrees to require their insurer to waive their rights of subrogation against the Board.

**Deleted:** The Board will be defended, indemnified and held harmless to the full extent of any coverage actually secured by the Contractor in excess of the minimum requirements set forth above.

**Deleted:** <#>The insurance required in this Contract, through a policy or endorsement(s), shall include a provision that the policy and endorsements may not be canceled or modified without thirty (30) days' prior written notice to the Board.¶  
<#>¶

C. Failure to provide insurance as required in this Contract may be deemed a material breach of contract entitling the Board to immediately terminate this Contract. The Contractor shall furnish a certificate of insurance and all endorsements to the Board before the commencement of this Contract. Contractor shall provide at least thirty (30) days' prior written notice to the Board of any cancellation or non renewal of any required coverage that is not replaced.

**26. Key Person(s).**

A. If both parties have designated that certain individual(s) are essential to the services offered, the parties agree that should such individual(s) leave their employment during the term of this Contract for whatever reason, the Board shall have the right to terminate this Contract upon thirty (30) days' prior written notice.

B. In the event that the Contractor is an individual, that individual shall be considered a key person and, as such, essential to this Contract. Substitution of another for the Contractor shall not be permitted without express written consent of the Board.

Nothing in sections A and B, above shall be construed to prevent the Contractor from using the services of others to perform tasks ancillary to those tasks which directly require the expertise of the key person. Examples of such ancillary tasks include secretarial, clerical, and common labor duties. The Contractor shall, at all times, remain responsible for the performance of all necessary tasks, whether performed by a key person or others.

Key person(s) to this Contract is/are \_\_\_\_\_

**AT&T Response:**

AT&T cannot agree to this requirement. AT&T must retain the right to allocate its own employee resources. Due to the possibility of promotions or role reassignments, AT&T is unable to guarantee that assigned personnel will remain on the project for the duration of any

resulting contract. However, AT&T understands the importance of consistent support and will work with the Customer to the greatest extent possible to minimize personnel transition and to ensure that the performance of the personnel supporting the Customer and this project meets or exceeds the Customer's expectations.

AT&T shall employ and make available at reasonable times an adequate number of appropriately qualified and trained personnel, familiar with Customer's operations and use of telecommunications services, to provide and support Customer's use of the Services in accordance with the terms of AT&T's response to this RFP. The identities and titles of specific persons and their availability to provide and support Customer's needs will be separately established by authorized representatives of AT&T upon award of the RFP to AT&T. If required after contract award, AT&T will supply documentation to authenticate technical expertise, within the parameters of confidentiality limits

The individual that will be assigned overall responsibility for the project is \_\_\_\_\_.

**27. Minority, Women, and Veteran Business Enterprise Participation.** Substantially all of the work under this Contract will be performed directly by the Contractor's employees or by its certified technicians. Prior to the time the Contractor employs any third party subcontractors, the Contractor will work with the Board to identify opportunities and select qualified participants.

**28. Licensing Standards.** The Contractor, its employees and subcontractors shall comply with all applicable licensing standards, certification standards, accrediting standards and any other laws, rules, or regulations governing services to be provided by the Contractor pursuant to this Contract. The Board will not pay the Contractor for any services performed when the Contractor, its employees or subcontractors are not in compliance with such applicable standards, laws, rules, or regulations. If any license, certification or accreditation expires or is revoked, or any disciplinary action is taken against an applicable license, certification, or accreditation, the Contractor shall notify the Board immediately and the Board, at its option, may immediately terminate this Contract.

**AT&T Response:**

AT&T's Response is submitted under applicable laws and regulations current at the time of contract execution. Changes in laws and regulations may require changes in pricing and performance.

**29. Merger & Modification.** This Contract constitutes the entire agreement between the parties. No understandings, agreements, or representations, oral or written, not specified within this Contract will be valid provisions of this Contract. This Contract may not be modified, supplemented, or amended, except by written agreement signed by all necessary parties.

**30. Nondiscrimination.**

Pursuant to the federal Civil Rights Act of 1964, the Age Discrimination in Employment Act, and the Americans with Disabilities Act, the Contractor covenants that it shall not discriminate against any employee or applicant for employment relating to this Contract with respect to the hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of the employee's or applicant's race, color, national origin, religion, sex, age, disability,

ancestry, status as a veteran, or any other characteristic protected by federal, state, or local law (“Protected Characteristics”). Contractor certifies compliance with applicable federal laws, regulations, and executive orders prohibiting discrimination based on the Protected Characteristics in the provision of services. Breach of this paragraph may be regarded as a material breach of this Contract, but nothing in this paragraph shall be construed to imply or establish an employment relationship between the Board and any applicant or employee of the Contractor or any subcontractor.

The Board is periodically a recipient of federal funds, and therefore, where applicable, Contractor and any subcontractors shall comply with requisite affirmative action requirements, including reporting, pursuant to 41 CFR Chapter 60, as amended, and Section 202 of Executive Order 11246.

**31. Notice to Parties.** Whenever any notice, statement or other communication is required under this Contract, it shall be sent by first class mail or via an established courier or delivery service to the following addresses, unless otherwise specifically advised.

A. Notices to the Board shall be sent to:

Alabama 911 Board  
Attn: \_\_\_\_\_  
[ADDRESS]

B. Notices to the Contractor shall be sent to: **(Include contact name and/or title, name of vendor & address)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Payments to the Contractor shall be made via electronic funds transfer in accordance with instructions filed by the Contractor with the Board.

**32. Order of Precedence; Incorporation by Reference.** Any inconsistency or ambiguity in this Contract shall be resolved by giving precedence in the following order: (1) this Contract, (2) attachments prepared by the Board, (3) RFP#\_\_\_\_\_, (4) Contractor’s response to RFP#\_\_\_\_\_, and (5) attachments prepared by the Contractor. All attachments, and all documents referred to in this paragraph, are hereby incorporated fully by reference.

**AT&T Response:**

The order of precedence will need to be negotiated to ensure that matters contained in Contractor’s response and mutually agreed to between the parties take precedence over the RFP itself.

**33. Ownership of Documents and Materials.** All documents, records, programs, data, film, tape, articles, memoranda, and other materials not developed or licensed by the Contractor prior to execution of this Contract, but specifically developed under this Contract shall be considered “work for hire” and the Contractor transfers any ownership claim to the Board and all such materials will be the property of the Board. Use of these materials, other than related to contract performance by the Contractor, without the prior written consent of the Board, is prohibited. During the performance of this Contract, the Contractor shall be responsible for any loss of or damage to these materials developed for or supplied by the Board

and used to develop or assist in the services provided while the materials are in the possession of the Contractor. Any loss or damage thereto shall be restored at the Contractor's expense. The Contractor shall provide the Board full, immediate, and unrestricted access to the work product during the term of this Contract.

**34. Payments.** All payments shall be made 60 days in arrears by electronic funds transfer to the financial institution designated by the Contractor in writing. No payments will be made in advance of receipt of the goods or services that are the subject of this Contract.

**AT&T Response:**

Based on the State's response to question 15 and Addendum #3, AT&T is in compliance with the State of Alabama Prompt Payment Act.

**35. Penalties/Interest/Attorney's Fees.** The Board will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest or attorney's fees, except as permitted by Alabama law. – Any liability resulting from the Board's failure to make prompt payment shall be based solely on the amount of funding originating from the Board and shall not be based on funding from federal or other sources.

**36. Progress Reports.** The Contractor shall submit progress reports to the Board upon request. The progress reports shall serve the purpose of assuring the Board that work is progressing in line with the schedule, and that completion can be reasonably assured on the scheduled date.

**37. Public Record.** The Contractor acknowledges that the Board will not treat this Contract as containing confidential information. Use by the public of the information contained in this Contract shall not be considered an act of the Board.

**38. Renewal Option.** This Contract may be renewed under the same terms and conditions, subject to the approval of the Board. The term of the renewed contract may not be longer than the term of the original contract.

**39. Severability.** The invalidity of any section, subsection, clause or provision of this Contract shall not affect the validity of the remaining sections, subsections, clauses or provisions of this Contract.

**40. Substantial Performance.** This Contract shall be deemed to be substantially performed only when fully performed according to its terms and conditions and any written amendments or supplements.

**41. Taxes.** The Board is exempt from most state and local taxes and many federal taxes. The Board will not be responsible for any taxes levied on the Contractor as a result of this Contract.

**AT&T Response:**

Prices set forth in a Pricing Schedule are exclusive of and Customer will pay all taxes (excluding those on AT&T's net income), surcharges, recovery fees, customs clearances, duties, levies, shipping charges and other similar charges (and any associated interest and penalties resulting from Customer's failure to timely pay such taxes or similar charges) relating to the sale, transfer of ownership, installation, license, use or provision of the Services, except to the extent

Customer provides a valid exemption certificate prior to the delivery of Services. To the extent required by law, Customer may withhold or deduct any applicable taxes from payments due to AT&T, provided that Customer will use reasonable commercial efforts to minimize any such taxes to the extent allowed by law or treaty and will furnish AT&T with such evidence as may be required by relevant taxing authorities to establish that such tax has been paid so that AT&T may claim any applicable credit.

**42. Termination for Convenience.** This Contract may be terminated, in whole or in part, by the Board whenever, for any reason, the Board determines that such termination is in its best interest. Termination of services shall be effected by delivery to the Contractor of a Termination Notice at least thirty (30) days prior to the termination effective date, specifying the extent to which performance of services under such termination becomes effective. The Contractor shall be compensated for services properly rendered prior to the effective date of termination. The Board will not be liable for services performed after the effective date of termination. The Contractor shall be compensated for services herein provided but in no case shall total payment made to the Contractor exceed the original contract price or shall any price increase be allowed on individual line items if canceled only in part prior to the original termination date.

**43. Termination for Default.**

A. With the provision of thirty (30) days' notice to the Contractor, the Board may terminate this Contract in whole or in part if the Contractor fails to:

1. Correct or cure any breach of this Contract; the time to correct or cure the breach may be extended beyond thirty (30) days if the Board determines progress is being made and the extension is agreed to by the parties;
2. Deliver the supplies or perform the services within the time specified in this Contract or any extension;
3. Make progress so as to endanger performance of this Contract; or
4. Perform any of the other provisions of this Contract.

B. If the Board terminates this Contract in whole or in part, it may acquire, under the terms and in the manner the Board considers appropriate, supplies or services similar to those terminated, and the Contractor will be liable to the Board for any excess costs for those supplies or services. However, the Contractor shall continue the work not terminated

C. The Board shall pay the contract price for completed supplies delivered and services accepted. The Contractor and the Board shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. The Board may withhold from these amounts any sum the Board determines to be necessary to protect the Board against loss because of outstanding liens or claims of former lien holders.

D. The rights and remedies of the Board in this clause are in addition to any other rights and remedies provided by law or equity or under this Contract.

**AT&T Response:**

AT&T takes exception to this Section 43 and suggests we incorporate the following:

### 43. SUSPENSION AND TERMINATION

- 43.1 Termination of Agreement. This Agreement may be terminated immediately upon notice by either party if the other party becomes insolvent, ceases operations, is the subject of a bankruptcy petition, enters receivership or any state insolvency proceeding or makes an assignment for the benefit of its creditors.
- 43.2 Termination or Suspension. The following additional termination provisions apply:
- (a) Material Breach. If either party fails to perform or observe any material warranty, representation, term or condition of this Agreement, including non-payment of charges, and such failure continues unremedied for 30 days after receipt of notice, the aggrieved party may terminate (and AT&T may suspend and later terminate) the affected Service Components and, if the breach materially and adversely affects the entire Agreement, terminate (and AT&T may suspend and later terminate) the entire Agreement.
  - (b) Materially Adverse Impact. If AT&T revises a Service Publication, the revision has a materially adverse impact on Customer and AT&T does not effect revisions that remedy such materially adverse impact within 30 days after receipt of notice from Customer, then Customer may, as Customer's sole remedy, elect to terminate the affected Service Components on 30 days' notice to AT&T, given not later than 90 days after Customer first learns of the revision to the Service Publication. "Materially adverse impacts" do not include changes to non-stabilized pricing, changes required by governmental authority, or assessment of or changes to additional charges such as surcharges or taxes.
  - (c) Internet Services. If Customer fails to rectify a violation of the AUP within 5 days after receiving notice from AT&T, AT&T may suspend the affected Service Components. AT&T reserves the right, however, to suspend or terminate immediately when: (i) AT&T's suspension or termination is in response to multiple or repeated AUP violations or complaints; (ii) AT&T is acting in response to a court order or governmental notice that certain conduct must be stopped; or (iii) AT&T reasonably determines that (a) it may be exposed to sanctions, liability, prosecution or other adverse consequences under applicable law if AT&T were to allow the violation to continue; (b) such violation may harm or interfere with the integrity, normal operations or security of AT&T's network or networks with which AT&T is interconnected or may interfere with another customer's use of AT&T services or the Internet; or (c) such violation otherwise presents an imminent risk of harm to AT&T, AT&T's customers or its or their respective employees.
  - (d) Fraud or Abuse. AT&T may terminate or suspend an affected Service or Service Component and, if the activity materially and adversely affects the entire Agreement, terminate or suspend the entire Agreement, immediately by providing Customer with as much advance notice as is reasonably practicable under the circumstances if Customer, in the course of breaching the Agreement: (i) commits a fraud upon AT&T; (ii) uses the Service to commit a fraud upon another party; (iii) unlawfully uses the Service;

(iv) abuses or misuses AT&T's network or Service; or (v) interferes with another customer's use of AT&T's network or services.

- (e) Infringing Services. If the options described in Section 7.3 (Infringing Services) are not reasonably available, AT&T may at its option terminate the affected Services or Service Components without liability other than as stated in Section 7.1 (AT&T's Obligations).
- (f) Hazardous Materials. If AT&T encounters any Hazardous Materials at the Site, AT&T may terminate the affected Services or Service Components or may suspend performance until Customer removes and remediates the Hazardous Materials at Customer's expense in accordance with applicable law.

#### 43.3 Effect of Termination.

- (a) Termination or suspension by either party of a Service or Service Component does not waive any other rights or remedies a party may have under this Agreement and will not affect the rights and obligations of the parties regarding any other Service or Service Component.
- (b) If a Service or Service Component is terminated, Customer will pay all amounts incurred prior to the effective date of termination.

#### 43.4 Termination Charges.

- (a) If Customer terminates this Agreement or an affected Service or Service Component for cause in accordance with the Agreement or if AT&T terminates a Service or Service Component other than for cause, Customer will not be liable for the termination charges set forth in this Section 43.4.
- (b) If Customer or AT&T terminates a Service or Service Component prior to Cutover other than as set forth in Section 43.4(a), Customer (i) will pay any pre-Cutover termination or cancellation charges set out in a Pricing Schedule or Service Publication, or (ii) in the absence of such specified charges, will reimburse AT&T for time and materials incurred prior to the effective date of termination, plus any third party charges resulting from the termination.
- (c) If Customer or AT&T terminates a Service or Service Component after Cutover other than as set forth in Section 43.4(a), Customer will pay applicable termination charges as follows: (i) 50% (unless a different amount is specified in the Pricing Schedule) of any unpaid recurring charges for the terminated Service or Service Component attributable to the unexpired portion of an applicable Minimum Payment Period; (ii) if termination occurs before the end of an applicable Minimum Retention Period, any associated credits or waived or unpaid non-recurring charges; and (iii) any charges incurred by AT&T from a third party (i.e., not an AT&T Affiliate) due to the termination. The charges set forth in Sections 43.4(c)(i) and (ii) will not apply if a terminated Service Component is

replaced with an upgraded Service Component at the same Site, but only if the Minimum Payment Period or Minimum Retention Period, as applicable, (the "Minimum Period") and associated charge for the replacement Service Component are equal to or greater than the corresponding Minimum Period and associated charge for the terminated Service Component, respectively, and if the upgrade is not restricted in the applicable Service Publication.

- (d) In addition, if Customer terminates a Pricing Schedule that has a MARC, Customer will pay an amount equal to 50% of the unsatisfied MARC for the balance of the Pricing Schedule Term.

**44. Travel.** No expenses for travel will be reimbursed unless specifically permitted under the scope of services or consideration provisions. If approved by the Board, expenditures made by the Contractor for travel will be reimbursed at the current rate paid by the Board and in accordance with the State Travel Policies and Procedures as specified in the current Financial Management Circular. Out-of-state travel requests must be reviewed by the Board for availability of funds and for appropriateness per Circular guidelines.

**45. Waiver of Rights.** No right conferred on either party under this Contract shall be deemed waived, and no breach of this Contract excused, unless such waiver is in writing and signed by the party claimed to have waived such right. Neither the Board's review, approval or acceptance of, nor payment for, the services required under this Contract shall be construed to operate as a waiver of any rights under this Contract or of any cause of action arising out of the performance of this Contract, and the Contractor shall be and remain liable to the Board in accordance with applicable law for all damages to the Board caused by the Contractor's negligent performance of any of the services furnished under this Contract.

**AT&T Response:**

AT&T understands and agrees, subject to a commercially reasonable limitation of liability clause.

**46. Work Standards.** The Contractor shall execute its responsibilities by following and applying at all times the highest professional and technical guidelines and standards. If the Board becomes dissatisfied with the work product of or the working relationship with those individuals assigned to work on this Contract, the Board may request in writing the replacement of any or all such individuals, and the Contractor shall grant such request.

**AT&T Response:**

AT&T shall employ and make available at reasonable times an adequate number of appropriately qualified and trained personnel, familiar with Customer's operations and use of telecommunications services, to provide and support Customer's use of the Services in accordance with the terms of AT&T's response to this RFP. AT&T retains the right to manage and deploy its personnel as appropriate from time to time. If Customer requests AT&T to substitute an employee, Customer shall provide such requests in writing, explaining in reasonable detail the reason(s) for the removal request. Any such request shall be for lawful

reasons. AT&T will work with the Customer to reach a solution geared to providing Services in compliance with contracted standards.

**47 Non-Collusion and Acceptance**

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Contract other than that which appears upon the face hereof.

**AT&T Response:**

**48. LIMITATIONS OF LIABILITY AND DISCLAIMERS**

**48.1 Limitation of Liability.**

- (a) EITHER PARTY'S ENTIRE LIABILITY AND THE OTHER PARTY'S EXCLUSIVE REMEDY FOR DAMAGES ON ACCOUNT OF ANY CLAIM ARISING OUT OF AND NOT DISCLAIMED UNDER THIS AGREEMENT SHALL BE:
  - (i) FOR BODILY INJURY, DEATH OR DAMAGE TO REAL PROPERTY OR TO TANGIBLE PERSONAL PROPERTY PROXIMATELY CAUSED BY A PARTY'S NEGLIGENCE, PROVEN DIRECT DAMAGES;
  - (iii) FOR CLAIMS ARISING FROM THE OTHER PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, PROVEN DAMAGES; OR
  - (iv) FOR CLAIMS OTHER THAN THOSE SET FORTH IN SECTION 48.1(a)(i)-(iii), PROVEN DIRECT DAMAGES NOT TO EXCEED, ON A PER CLAIM OR AGGREGATE BASIS DURING ANY TWELVE (12) MONTH PERIOD, AN AMOUNT EQUAL TO THE TOTAL NET CHARGES INCURRED BY CUSTOMER FOR THE AFFECTED SERVICE IN THE RELEVANT COUNTRY DURING THE THREE (3) MONTHS PRECEDING THE MONTH IN WHICH THE CLAIM AROSE.
- (b) EXCEPT IN THE CASE OF A PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, RELIANCE OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION DAMAGES FOR LOST PROFITS, ADVANTAGE, SAVINGS OR REVENUES OR FOR INCREASED COST OF OPERATIONS.
- (c) THE LIMITATIONS IN THIS SECTION 48 SHALL NOT LIMIT CUSTOMER'S RESPONSIBILITY FOR THE PAYMENT OF ALL PROPERLY DUE CHARGES UNDER THIS AGREEMENT.

**48.2 Disclaimer of Liability. AT&T WILL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF OR RELATING TO: INTEROPERABILITY, ACCESS OR INTERCONNECTION OF THE SERVICES**

WITH APPLICATIONS, DATA, EQUIPMENT, SERVICES, CONTENT OR NETWORKS PROVIDED BY CUSTOMER OR THIRD PARTIES; SERVICE DEFECTS, SERVICE LEVELS, DELAYS OR ANY SERVICE ERROR OR INTERRUPTION, INCLUDING INTERRUPTIONS OR ERRORS IN ROUTING OR COMPLETING ANY 911 OR OTHER EMERGENCY RESPONSE CALLS OR ANY OTHER CALLS OR TRANSMISSIONS (EXCEPT FOR CREDITS EXPLICITLY SET FORTH IN THIS AGREEMENT); LOST OR ALTERED MESSAGES OR TRANSMISSIONS; OR UNAUTHORIZED ACCESS TO OR THEFT, ALTERATION, LOSS OR DESTRUCTION OF CUSTOMER'S (OR ITS AFFILIATES', USERS' OR THIRD PARTIES') APPLICATIONS, CONTENT, DATA, PROGRAMS, INFORMATION, NETWORKS OR SYSTEMS.

48.3 Purchased Equipment and Vendor Software Warranty. AT&T shall pass through to Customer any warranties for Purchased Equipment and Vendor Software available from the manufacturer or licensor. The manufacturer or licensor, and not AT&T, is responsible for any such warranty terms and commitments. ALL SOFTWARE AND PURCHASED EQUIPMENT IS OTHERWISE PROVIDED TO CUSTOMER ON AN "AS IS" BASIS.

48.4 Disclaimer of Warranties. AT&T MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT AND SPECIFICALLY DISCLAIMS ANY WARRANTY ARISING BY USAGE OF TRADE OR BY COURSE OF DEALING. FURTHER, AT&T MAKES NO REPRESENTATION OR WARRANTY THAT TELEPHONE CALLS OR OTHER TRANSMISSIONS WILL BE ROUTED OR COMPLETED WITHOUT ERROR OR INTERRUPTION (INCLUDING CALLS TO 911 OR ANY SIMILAR EMERGENCY RESPONSE NUMBER) AND MAKES NO GUARANTEE REGARDING NETWORK SECURITY, THE ENCRYPTION EMPLOYED BY ANY SERVICE, THE INTEGRITY OF ANY DATA THAT IS SENT, BACKED UP, STORED OR SUBJECT TO LOAD BALANCING OR THAT AT&T'S SECURITY PROCEDURES WILL PREVENT THE LOSS OR ALTERATION OF OR IMPROPER ACCESS TO CUSTOMER'S DATA AND INFORMATION.

48.5 Application and Survival. The disclaimer of warranties and limitations of liability set forth in this Agreement will apply regardless of the form of action, whether in contract, equity, tort, strict liability or otherwise, of whether damages were foreseeable and of whether a party was advised of the possibility of such damages and will apply so as to limit the liability of each party and its Affiliates and their respective employees, directors, subcontractors and suppliers. The limitations of liability and disclaimers set out in this Section will survive failure of any exclusive remedies provided in this Agreement.

**49. Add Safe Working Environment.**

Safe Working Environment. Customer will ensure that the location at which AT&T installs, maintains or provides Services is a safe working environment, free of Hazardous Materials and reasonably suitable for the Services. "Hazardous Materials" mean any substance or material capable of posing an unreasonable risk to health, safety or property or whose use, transport, storage, handling, disposal or release is regulated by any law related to pollution, to protection of air, water or soil or to health and safety. AT&T shall have no obligation to perform work at a

location that is not a suitable and safe working environment or to handle, remove or dispose of Hazardous Materials.

**50. Add Access Right**

Access Right. Customer will in a timely manner allow AT&T access as reasonably required for the Services to property and equipment that Customer controls and will obtain at Customer's expense timely access for AT&T as reasonably required for the Services to property controlled by third parties such as Customer's landlord. AT&T will coordinate with and, except in an emergency, obtain Customer's consent to enter upon Customer's property and premises, which consent shall not be unreasonably withheld. Access rights mean the right to construct, install, repair, maintain, replace and remove access lines and network facilities and the right to use ancillary equipment space within a building for Customer's connection to AT&T's network. Customer must provide AT&T timely information and access to Customer's facilities and equipment as AT&T reasonably requires for the Services, subject to Customer's reasonable security policies. Customer will furnish any conduit, holes, wireways, wiring, plans, equipment, space, power/utilities and other items as AT&T reasonably requires for the Services and will obtain any necessary licenses, permits and consents (including easements and rights-of-way). Customer will have the Site ready for AT&T to perform its work according to a mutually agreed schedule.

**51. Add Publicity/Trademarks**

Publicity. Subject to any applicable public records laws, neither party may issue any public statements or announcements relating to the terms of this Agreement or to the provision of Services without the prior written consent of the other party.

Trademarks. Each party agrees not to display or use, in advertising or otherwise, any of the other party's trade names, logos, trademarks, service marks or other indicia of origin without the other party's prior written consent, which consent may be revoked at any time by notice.

**52. Add Deliverables**

- A. Services. AT&T agrees to either provide or arrange to have an AT&T Affiliate provide Services to Customer in accordance with this Contract, subject to availability and operational limitations of systems, facilities and equipment. Where required, an AT&T Affiliate authorized by the appropriate regulatory authority will be the service provider.
- B. AT&T Equipment. Services may include use of certain equipment owned by AT&T that is located at the Site ("AT&T Equipment"), but title to the AT&T Equipment will remain with AT&T. Customer must provide electric power for the AT&T Equipment and keep the AT&T Equipment physically secure and free from liens and encumbrances. Customer will bear the risk of loss or damage to AT&T Equipment (other than ordinary wear and tear) except to the extent caused by AT&T or its agents.

- C. Software. Any software used with the Services will be governed by the written terms and conditions applicable to such software. Title to software remains with AT&T or its supplier. Customer must comply with all such terms and conditions and they take precedence over this Contract as to such software.

**53. Add Import/Export Control**

Import/Export Control. The parties acknowledge that equipment, services, software, and technical information (including technical assistance and training) provided under this Contract may be subject to import and export laws, conventions or regulations, and any use or transfer of the equipment, products, software, and technical information must be in compliance with all such laws, conventions and regulations. The parties will not use, distribute, transfer, or transmit the equipment, services, software, or technical information (even if incorporated into other products) except in compliance with such laws, conventions and regulations. Customer, not AT&T, is responsible for complying with such laws, conventions and regulations for all information, equipment and software Customer transmits between countries using the Services.

**54. Add No Third Party Beneficiaries**

No Third Party Beneficiaries. This Agreement is for the benefit of permitted Customers and AT&T, and does not provide any third party (including Users) the right to enforce or bring an action for any remedy, claim, liability, reimbursement, cause of action or other right or privilege.

**55. Add Survival**

The respective obligations of Customer and AT&T that by their nature would continue beyond the termination or expiration of this Contract, including without limitation, the obligations set forth in Sections related to Confidentiality, Disclaimers and Limitations of Liability, and Indemnification, will survive termination or expiration.

**In Witness Whereof**, Contractor and the Board have, through their duly authorized representatives, entered into this Contract. The parties, having read and understood the foregoing terms of this Contract, do by their respective signatures dated below agree to the terms thereof.

[Contractor]

Alabama Statewide 911 Board

By: \_\_\_\_\_

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Printed Name: \_\_\_\_\_

AL-NG911-RFP-16-001

Title: \_\_\_\_\_

Title: \_\_\_\_\_

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

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

Questions:

**AL-NG911-RFP-16-001 Next Generation 911 Systems and Services**  
**Attachment B - Business Proposal**

**Instructions**

Tab Name	Instructions
Business Proposal	Please fill in the cells shaded yellow and indicate if any attachments are included in the response to each item. Some items require a yes/no answer and an explanation if the answer is no.

**AL-NG911-RFP-16-001 ATTACHMENT B - BUSINESS PROPOSAL**

Respondent Name: <b>AT&amp;T</b>
<b>Please Complete Yellow Shaded Regions</b>

**2.3.1 GENERAL (OPTIONAL)**

The Respondent may use this optional section of the business proposal to introduce or summarize any information the Respondent deems relevant or important to the State's successful acquisition of the products and/or services requested in this RFP.

**Enter your response below. Please indicate if attachments are included.**

AT&T offers a comprehensive suite of public safety solutions to meet the needs of any Public Safety Answering Point (PSAP) regardless of size, including leading edge networks, comprehensive database services, professional 911 database services, professional support systems and a wide variety of CPE packages including next generation IP-enabled controllers, intelligent workstations, time synchronization, mapping, and computer aided dispatch (CAD).

AT&T has a fully dedicated 9-1-1 Public Safety Support Organizations including Account Management, Project/Service Delivery, Network Operations Center, Advanced Technical Services, Public Safety Product Management and Legal. The AT&T Public Safety Team serves 3,800 PSAP's and is the leading provider of 9-1-1 Services in the United States. AT&T employs hundreds of trained technicians, managers, consultants, and engineers who are fully dedicated to keeping 9-1-1 service operating 24X7X365. In addition, the AT&T National Disaster Recovery (NDR) Team provides a way to rapidly restore Network Services after catastrophic disasters.

AT&T has been and continues to be a strong advocate of Next Generation 9-1-1 solutions as Public Safety faces the future. As one of the leading worldwide providers of IP and wireless communications services, AT&T is uniquely positioned to support Public Safety from Call to Car to Crisis.

A key to our success in providing and integrating services is AT&T Labs, our research and development group. AT&T Labs has won eight Nobel Prizes and has more than 9,000 patents. Our researchers and engineers developed some of the world's major technological inventions, including the transistor, solar cell, cell phone, and communications satellite. In addition, AT&T Labs led in developing DSL and other broadband Internet transport and delivery systems as well as wireless data networks.

You can find additional corporate information at the following link: <http://www.att.com/gen/investor-relations?pid=5711>

When you choose AT&T as your provider, you get innovative products and high-quality service.

**2.3.2 RESPONDENT'S COMPANY STRUCTURE**

**Enter your response below. Please indicate if attachments are included.**

The legal form of the Respondent's business organization, the state in which formed (accompanied by a certificate of authority), the types of business ventures in which the organization is involved, and a chart of the organization are to be included in this section. If the organization includes more than one product division, the division responsible for the development and marketing of the requested products and/or services in the United States must be described in more detail than other components of the organization.

The AT&T Corp. state of incorporation is New York.

AT&T Overview: In the U.S., AT&T serves over 130 million wireless subscribers, and is a premier provider of broadband, long distance, and local voice services. We also offer our communication services in almost every other country and territory in the world. Our services enable calls from more than 225 countries as well as wireless data roaming—for laptops, hand-held devices, and other data services—in more than 210 countries.

As a worldwide provider of IP-based services, we offer an extensive portfolio of Virtual Private Network (VPN) and Voice over IP (VoIP) services, which we back with security and support capabilities. We deliver these services to you via one of the world's most advanced backbone networks. Our wholly owned backbone network, which we operate from 38 Internet data centers (IDCs) on five continents, uses Multiprotocol Label Switching (MPLS) technology to integrate multiple network services.

The network provides MPLS-based services in 182 countries and includes more than

- 3,800 nodes
- 1,014,000 fiber route miles

We also operate a wireless network that includes

- Coverage of more than 99% of the U.S. population, including the top 100 U.S. markets.
- Superior speeds for data and video services, as well as operating efficiencies using the same spectrum and infrastructure for voice and data on an IP-based platform.
- Digital transmission technologies known as GSM, General Packet Radio Services and Enhanced Data Rates for GSM Evolution for data communications.
- The nation's fastest mobile broadband network. 4G speeds are available with our Universal Mobile Telecommunications System/High-Speed Downlink Packet Access (UMTS/HSDPA) broadband and HSPA+ network technology, combined with our upgraded backhaul.
- Transition to more advanced LTE technology

In addition to retail communication services, AT&T is a global leader in wholesale communication services. Our wholesale organization serves carriers, wireless service providers, systems integrators, cable providers, Internet service providers (ISPs), and content providers that need global, regional, and local end-to-end solutions.

A key to our success in providing and integrating services is AT&T Labs, our research and development group. AT&T Labs has won eight Nobel Prizes and has more than 9,000 patents. Our researchers and engineers developed some of the world's major technological inventions, including the transistor, solar cell, cell phone, and communications satellite. In addition, AT&T Labs led in developing DSL and other broadband Internet transport and delivery systems as well as wireless data networks.

You can find additional corporate information at the following link:

- <http://www.att.com/gen/investor-relations?pid=5711>

When you choose AT&T as your provider, you get innovative products and high-quality service.

Organization Chart

Please see AT&T Attachments: Organization Chart for complete details.

### 2.3.3 COMPANY FINANCIAL INFORMATION

This section must include the Respondent's financial statement, including an income statement and balance sheet, for each of the two most recently completed fiscal years. The financial statements must demonstrate the Respondent's financial stability. If the financial statements being provided by the Respondent are those of a parent or holding company, additional financial information should be provided for the entity/organization directly responding to this RFP.

**Enter your response below. Please indicate if attachments are included.**

AT&T's financial performance has been consistently strong. AT&T has been profitable for more than 140 years and is ranked 11th on the Fortune 500 U.S. list and 32th on the Global 500 list. Although we've occasionally reported negative income due to accounting changes or one-time charges, we've had a positive operating income since 1984.

AT&T has high credit ratings with four major agencies.

These ratings include the following:

- Dun & Bradstreet (D&B): 5A2 (2015)
- Fitch: A- (2015)
- Moody's: Baa1 (2015)
- Standard & Poor's (S&P): BBB+ (2015)

In addition, AT&T's 2015 Fortune 500 rankings are 12 (U.S.) and 34 (global).

So, our high credit ratings reflect our sound financial health.

You can find AT&T's Investor Relations website at the following link:

- <http://www.att.com/gen/investor-relations?pid=268>

Consequently, we expect to continue our strong record of returning substantial value to our shareowners.

**2.3.4 INTEGRITY OF COMPANY STRUCTURE AND FINANCIAL REPORTING**

Enter your response below. Please indicate if attachments are included.

This section must include a statement indicating that the CEO and/or CFO has taken personal responsibility for the thoroughness and correctness of any and all financial information supplied with this proposal. The particular areas of interest to the Board in considering corporate responsibility include the following items: separation of audit functions from corporate boards and board members, if any, the manner in which the firm assures board integrity, and the separation of audit functions and consulting services. The State of Alabama will consider the information offered in this section to determine the responsibility of the Respondent.

The Sarbanes Oxley Act of 2002, H.R. 3763, is NOT directly applicable to this procurement; however, its goals and objectives may be used as a guide in the determination of corporate responsibility for financial reports.

AT&T maintains an extensive Sarbanes-Oxley compliance program. Our compliance is a matter of public record in our 10-K SEC filings.

Please see Attachment A for our Sarbanes-Oxley certification.

Under the Sarbanes-Oxley Act, we must  
 - Ensure the integrity of our financial data  
 - Certify that the controls and procedures for financial reporting and disclosure have been evaluated for effectiveness

From the 2014 AT&T Annual Report: The consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles. The integrity and objectivity of the data in these financial statements, including estimates and judgments relating to matters not concluded by year end, are the responsibility of management, as is all other information included in the Annual Report, unless otherwise indicated. The financial statements of AT&T Inc. (AT&T) have been audited by Ernst & Young LLP, Independent Registered Public Accounting Firm. Management has made available to Ernst & Young LLP all of AT&T's financial records and related data, as well as the minutes of stockholders' and directors' meetings. Furthermore, management believes that all representations made to Ernst & Young LLP during its audit were valid and appropriate.

Management maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed by AT&T is recorded, processed, summarized, accumulated and communicated to its management, including its principal executive and principal financial officers, to allow timely decisions regarding required disclosure, and reported within the time periods specified by the Securities and Exchange Commission's rules and forms. Management also seeks to ensure the objectivity and integrity of its financial data by the careful selection of its managers, by organizational arrangements that provide an appropriate division of responsibility and by communication programs aimed at ensuring that its policies, standards and managerial authorities are understood throughout the organization. The Audit Committee of the Board of Directors meets periodically with management, the internal auditors and the independent auditors to review the manner in which they are performing their respective responsibilities and to discuss auditing, internal accounting controls and financial reporting matters. Both the internal auditors and the independent auditors periodically meet alone with the Audit Committee and have access to the Audit Committee at any time.

Randall Stephenson  
 Chairman of the Board,  
 Chief Executive Officer and President

John J. Stephens  
 Senior Executive Vice President and  
 Chief Financial Officer

**2.3.5 CONTRACT TERMS/CLAUSES**

The contract resulting from this RFP will contain both mandatory and non-mandatory clauses. Mandatory clauses are non-negotiable while non-mandatory clauses are highly desirable. **Attachment A** contains a sample contract that will be similar to the one resulting from this RFP. Please indicate your acceptance of the following mandatory/non-mandatory clauses within the sample contract. If a non-mandatory clause is not acceptable as worded, please indicate in the "Additional Contract Considerations" and suggest a specific alternative wording to address issues raised by the specific clause in the explanation space provided. To reiterate, it's the Board's strong desire to not deviate from the contract provided in the attachment and as such the Board reserves the right to reject any and all of these requested changes. Failure to include a clear, specific, unequivocal agreement to these clauses may result in disqualification of the proposal from further

Mandatory Clauses	Acceptance? (Yes / No)	If No, Explanation
Duties of Contractor, Rate of Pay, and Term of Contract	YES	
Authority to Bind Contractor	YES	
Compliance with Laws	YES	
Drug-free Workplace Provision and Certification	YES	
Employment Eligibility Verification	YES	

Funding Cancellation	YES	
Governing Laws	YES	
Indemnification	YES	AT&T refers the state to answer to Question #14 and requests the opportunity to negotiate indemnification.
Information Technology	Not Applicable	<b>Not included in the Sample Contract Document</b>
Non-discrimination Clause	YES	
Ownership of Documents and Materials	YES	
Payments	YES	AT&T refers the state to answer to Question #15 and Addendum 3, which establishes new language and supports compliance with the current Alabama Prompt payment act.
Penalties/Interest/Attorney's Fees	YES	
Termination for Convenience	YES	
Non-collusion and Acceptance	YES	

**Enter your response below. Please indicate if attachments are included.**

<b>Additional Contract Considerations</b> <i>Please note: The Board will only review or negotiate changes to contract clauses clearly identified in the transmittal letter. If there are no contract clauses identified, Respondent is considered to have accepted the clauses as they are currently written.</i>	AT&T has agreed to all Mandatory Causes and has identified any suggested clarifications, suggested language or modifications to any non-mandatory clause in the transmittal letter as well as in Attachment A Sample Contract.
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### 2.3.6 REFERENCES

The Respondent must include a list of at least three (3) clients for whom the Respondent has provided products and/or services that are the same or similar to those products and/or services requested in this RFP. Any state government for whom the Respondent has provided these products and services should be included; also to be included should be clients with locations near Alabama as site visits may be arranged. Information provided should include the name, address, and telephone number of the client facility and the name, title, and phone/fax numbers of a person who may be contacted for further information.

#### Reference One

**Enter your response below.**

Legal Name of Company or Governmental Entity	Tennessee Emergency Communications Board
Industry of Company	State Government
Mailing Address	500 James Robertson Parkway Davy Crockett Tower Nashville, Tennessee 37243-0582
Telephone Number	615-253-2164
Contact Name	Curtis Sutton
Title	Executive Director
Telephone/Fax Number	615-253-2164 / 615-253-2180
E-mail Address	Curtis.sutton@tn.gov
Time period in which services were provided	Installation began in second half of 2010. The ESInet offer is part of a larger statewide contract that is in force until 2018.
Please describe the service provided to this reference	State of Tennessee - Implementation of a state wide ESInet to handle/route all wireless and wireline 911 calls including deploying and managing a state wide ANI/ALI database.

#### Reference Two

**Enter your response below.**

Legal Name of Company or Governmental Entity	Brevard County E9-1-1 Administration
Industry of Company	County Government
Mailing Address	Government Center C-201
Telephone Number	321.690-6846
Contact Name	Deborah A. Sands
Title	911 Administration Manager/911 Coordinator

Telephone/Fax Number	321.690-6846/321.690-6842
E-mail Address	deborah.sands@brevardcounty.us
Time period in which services were provided	This business was acquired in 2009 and the customer has been utilizing the ESInet offering since Dec 2011
Please describe the service provided to this reference	Brevard County Florida was a sale of both AT&T ESINET as well as an AT&T Provided Hosted Viper Call Handling system serving 9 PSAPS and 64 positions. This ESInet solution is a combination of AT&T products/services and the TCS/mD ESInet routing platform.

**Reference Three**

**Enter your response below.**

Legal Name of Company or Governmental Entity	U S Navy
Industry of Company	Military
Mailing Address	SPAWAR Systems Center Pacific
Telephone Number	619.524.3176
Contact Name	Ron Anderson
Title	911 Administrator
Telephone/Fax Number	619.524.3176
E-mail Address	ron.anderson@navy.mil
Time period in which services were provided	March 2012 - Present
Please describe the service provided to this reference	Support the regionalization of U S Navy 911 emergency dispatch capabilities by providing AT&T ESInet

Please identify all references for the past five (5) years for whom your company has provided the same or similar services as those requested in this RFP, but the contract was terminated for cause or for convenience.

**Reference One**

**Enter your response below.**

Legal Name of Company or Governmental Entity	Not Applicable
Industry of Company	
Mailing Address	
Telephone Number	
Contact Name	
Title	
Telephone/Fax Number	
E-mail Address	
Time period in which services were provided	
Please describe the service provided to this reference	
Provide reason(s) for loss or termination	

**Reference Two**

**Enter your response below.**

Legal Name of Company or Governmental Entity	Not Applicable
Industry of Company	
Mailing Address	
Telephone Number	
Contact Name	
Title	
Telephone/Fax Number	
E-mail Address	
Time period in which services were provided	
Please describe the service provided to this reference	
Provide reason(s) for loss or termination	

**Reference Three**

**Enter your response below.**

Legal Name of Company or Governmental Entity	Not Applicable
Industry of Company	
Mailing Address	
Telephone Number	
Contact Name	
Title	
Telephone/Fax Number	
E-mail Address	
Time period in which services were provided	
Please describe the service provided to this reference	
Provide reason(s) for loss or termination	

**Corporate Litigation**

**Enter your response below. Please indicate if attachments are included.**

Does your company have any pending litigation regarding contract disputes?	<p>In the normal course of business, AT&amp;T, like other large companies, may be involved in a variety of legal proceedings. Our most recent 10-Q filed with the Securities and Exchange Commission, which addresses pending litigation in the Other Business Matters section can be found in the investor relations section of our website at <a href="http://phx.corporate-ir.net/phoenix.zhtml?c=113088&amp;p=irol-sec&amp;control_selectgroup=Quarterly%20Filings">http://phx.corporate-ir.net/phoenix.zhtml?c=113088&amp;p=irol-sec&amp;control_selectgroup=Quarterly%20Filings</a></p> <p>The 10-K is also found in the investor relations section of our website at <a href="http://phx.corporate-ir.net/phoenix.zhtml?c=113088&amp;p=irol-sec&amp;control_selectgroup=Annual%20Filings">http://phx.corporate-ir.net/phoenix.zhtml?c=113088&amp;p=irol-sec&amp;control_selectgroup=Annual%20Filings</a>.</p> <p>To the best of our knowledge, there are no suits pending that would materially impair us from meeting our obligations or contracted duties.</p> <p>AT&amp;T has read, understands, and complies</p>
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**2.3.7 REGISTRATION TO DO BUSINESS**

**Registered? (Yes / No)**

**If No, Explanation**

Respondents providing the products and/or services required by this RFP must be registered and in good standing with the Alabama Secretary of State. The requirement is applicable to all limited liability partnerships, limited partnerships, corporations, S-corporations, nonprofit corporations, and limited liability companies. Please indicate the status of registration.	Yes	
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**2.3.8 AUTHORIZING DOCUMENT**

**Enter your response below. Please indicate if attachments are included.**

Respondent personnel signing the Transmittal Letter of the proposal must be legally authorized by the organization to commit the organization contractually. This section shall contain proof of such authority. A copy of corporate bylaws or a corporate resolution adopted by the board of directors indicating this authority will fulfill this requirement.	<p>This subsection shall apply to all Commitment Contracts for goods or services purchased by or sold to the Company, except for those covered by Sections 2.06 through 2.11 and Section 8.01.</p> <p>The following Managers shall have the authority to approve, cancel, terminate, amend, and execute any Contract on behalf of the Company with a non-Affiliate for which the consideration the Company may be obligated to pay or is entitled to receive: (a) Contracts Treated as an Expense Item.</p> <p>The transmittal letter will be signed by a Senior Manager satisfying the AT&amp;T level of authority guidelines referenced above. See specific corporate bylaw above.</p>
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**2.3.9 SUBCONTRACTORS**

**Enter your response below. Please indicate if attachments are included.**

The Respondent is responsible for the performance of any obligations that may result from this RFP, and shall not be relieved by the non-performance of any subcontractor. Any Respondent's proposal must identify all subcontractors and describe the contractual relationship between the Respondent and each subcontractor. Either a copy of the executed subcontract or a letter of agreement over the official signature of the firms involved must accompany each proposal.

Any subcontracts entered into by the Respondent must be in compliance with all State statutes, and will be subject to the provisions thereof. For each portion of the proposed products or services to be provided by a subcontractor, the technical proposal must include the identification of the functions to be provided by the subcontractor and the subcontractor's related qualifications and experience.

The combined qualifications and experience of the Respondent and any or all subcontractors will be considered in the Board's evaluation. The Respondent must furnish information to the Board as to the amount of the subcontract, the qualifications of the subcontractor for guaranteeing performance, and any other data that may be required by the State. All subcontracts held by the Respondent must be made available upon request for

- A. Each subcontractor's name, address, and state of incorporation that are proposed to be used in providing the required products and services
- B. Each subcontractor's area(s) of responsibility under the proposal
- C. The anticipated dollar amount for each subcontract
- D. Each subcontractor's form of organization
- E. An indication from each subcontractor of a willingness to carry out their responsibilities (this assurance in no way relieves the Respondent of any responsibilities in responding to this RFP or in completing the commitments documented in this proposal)
- F. The qualifications of each subcontractor for guaranteeing performance
- G. Identification of the functions to be provided by the subcontractor and the subcontractor's related qualifications and experience in the technical proposal for each portion of the proposed products or services to be provided by the subcontractor
- H. Any other data that may be required by the State

A. Intrado Inc.  
1601 Dry Creek Drive,  
Longmont, CO 80503  
Incorporated in the State of Delaware.

B. West is supplying core routing hardware and software components that are part of AT&T's overall ESInet offer.

C. Confidential

D. Corporation

E. Please see the included Intrado Letter of Assurance.

F. and G. Intrado is extensively involved in all aspects of 9-1-1, giving us a unique perspective on its required evolutionary path to support new technologies and expanding citizen expectations. These insights have enabled Intrado to anticipate trends, and help public safety agencies and telecommunications service providers proactively prepare for change. Intrado's emergency communications excellence is built upon a strong foundation:

- An unmatched knowledge of emergency communications and public safety operations
- Proven experience in the design, deployment and operation of highly accurate, high-volume communication networks, equipment, software and applications
- A solid reputation as a trusted and neutral custodian of sensitive data
- A passion for saving lives

2011 marked the release of Intrado's i3 product suite designed to provide safe and stable transition to advanced next generation 9-1-1 functionality. The suite includes a broad range of premise-based and fully managed public safety solutions that align with most commonly used industry standards. Prominent among our products are our managed and secure emergency services IP network (ESInet) services.

Additional products in the i3 suite are:

- IP voice and data delivery to public safety answering points (PSAPs)
- Comprehensive Geographic Information Services (GIS)
- Location Information Services (LIS)
- Advanced call routing services including ESRP, ECRF, BCF, LNG, and LPG
- Network and Application Security services
- Voice and data gateway services for interoperability with legacy and other next generation networks
- Advanced message switching services

H.

**2.3.10 GENERAL INFORMATION**

**Business Information**

Enter your response below.

Legal Name of Company	AT&T Corp.
Contact Name	Joshua Yeager
Contact Title	Account Manager
Contact E-mail Address	<a href="mailto:jy014k@att.com">jy014k@att.com</a>
Company Mailing Address	38 Washington Ave, 3rd Floor
Company City, State, Zip	Montgomery, AL 36104
Company Telephone Number	334-273-2130
Company Fax Number	334-273-0062
Company Website Address	www.att.com
Number of Employees (company)	280,000
Years of Experience	139 years
Number of U.S. Offices	AT&T has approximately 63,000 company facilities located in the U.S. and its territories.
Year Alabama Office Established (if applicable)	

Parent Company (if applicable)	AT&T Inc.
Revenues (\$MM, prior year)	
Revenues (\$MM, two-years prior)	□2014—\$132.447 billion
% Of Revenue from Alabama customers	Estimates can be determined if required

	Yes / No	If No, Explanation
Does your company have a formal disaster recovery plan? If no, please provide an explanation of any alternative solution your company has to offer. If yes, please note and include as an attachment.	Yes	

**Enter your response below. Please indicate if attachments are included.**

What is your company's technology and process for securing any Board or private information that is maintained by your company?	AT&T has developed and maintains a comprehensive set of security standards based in part to similar leading industry standards (COBIT, ISO/IEC 27001:2005, etc.). Given the dynamic environment that AT&T supports, the library of AT&T security standards is continually re-evaluated and modified as industry standards evolve and as circumstances require. In addition, operating procedures, tools and other protective measures are regularly reviewed to ensure the highest standards of security are observed throughout the Corporation. AT&T's security policies and standards are proprietary to AT&T and are not generally disclosed to any organization or entity external to the AT&T corporate family. Maintaining the confidentiality of this information is, in itself, a facet of our security program that protects AT&T customers.
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**2.3.11 EXPERIENCE SERVING STATE GOVERNMENTS**

**Enter your response below. Please indicate if attachments are included.**

Please provide a brief description of your company's experience in serving state governments and/or quasi-governmental accounts. Disclose each state or jurisdiction in which Respondent does business or holds contracts to provide goods or services and the nature of each such business or contract.	<p>AT&amp;T has decades of experience in working with the State of Alabama including 8 existing communications procurement contract vehicles (T302, T410, T411, T412, T413, T414, T415, and T416). Five of these existing contracts list AT&amp;T as the only solutions vendor approved. All of these contract vehicles serve as procurement avenues for both the State of Alabama (directly and indirectly servicing all state agencies) and are available as procurement vehicles by all local government entities within State of Alabama's borders.</p> <p>Intrado has successfully deployed multiple successful statewide ESInets, including:</p> <ul style="list-style-type: none"> <li>• Minnesota – Fully deployed</li> <li>• Washington – Fully deployed</li> <li>• Vermont - Fully deployed</li> <li>• Hawaii – Fully deployed</li> <li>• Utah – 80% deployed</li> <li>• North Dakota – Being deployed</li> <li>• Delaware – Being deployed</li> <li>• Arizona – In contract negotiations</li> </ul> <p>Intrado also has multiple state, regional and county-wide deployments in Hawaii, North Carolina, South Carolina, Virginia, Pennsylvania, Florida, Ohio, Texas, California, and Nevada. Intrado is the only vendor that can state that we have never failed in deploying our ESInet and have continued production delivery of NG voice/routing in all awarded solutions with a 99.999% uptime over the life of the contract. Intrado provides public safety products and managed services in all 50 states. Our contracts are with government entities, telecommunication providers, and commercial entities.</p>
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**2.3.12 EXPERIENCE SERVING SIMILAR CLIENTS**

**Enter your response below. Please indicate if attachments are included.**

Please describe your company's experience in serving clients of a similar size to the State that also had a similar scope. Please provide specific clients and detailed examples.

**Minnesota** – . As of February 2014 the Minnesota State A9-1-1 conversion successfully migrated all 107 Minnesota PSAPs to the next-generation, standards-based Internet Protocol (IP) Emergency Services Internet (ESInet) network, which replaced the legacy TDM infrastructure and expands voice and data capabilities for emergency communications. Minnesota is utilizing real-time A9-1-1 ALI and routing methods to efficiently deliver 9-1-1 calls from landline, wireless, and VoIP devices. The highly redundant network is designed to accommodate emerging voice and data communications and provides the foundation for the delivery of additional critical information.

**Washington** - Intrado's A9-1-1 ESInet is fully deployed throughout the state. The Next Generation ESInet has significantly increased routing capabilities, including redundancy, diversity, and default/alternate routing scenarios. SIP is currently terminated at the PSAP, where it is available to be either relayed to the PSAP CPE equipment, or converted (with a Legacy Network Gateway) back to legacy CAMA.

**Utah** - Major population centers are deployed; rural areas pending. Valley Emergency Communications Center (VECC) has been an Intrado customer since 2009, initially using the advanced call routing capabilities of our A9-1-1 network to manage and route their wireless calls. VECC expanded services to include wireline calls as well as purchased and implemented VIPER call processing equipment providing quadruple redundancy at VECC and Weber County, as well as a common database for call routing and mapping systems that display the caller's location. The State of Utah plans to transition the entire state to Intrado's A9-1-1 solution. Please see: <http://vecc9-1-1.com/collaboration-moves-utah-toward-next-gen-911/>

**Delaware** - The State of Delaware has been an Intrado customer since 1988. With 9 PSAPS and 123 positions, in 2015 the State initiated an installation upgrade to Intrado's next-generation, standards-based Internet Protocol (IP) network to expand voice and data 9-1-1 capabilities. The state-of-the-art network utilizes advanced real-time routing methods, efficiently delivers calls through dynamic and redundant networks designed to accommodate emerging voice and data communications and provides the foundation for the delivery of additional critical information. Project schedules and timelines have always been met as well as budget and costs.

**Durham County, NC** - Customer for more than 10 years. The City and County of Durham is an Intrado Great Migration site with 2 multi-node VIPERs with 18 positions of Power 911/MIS/ACD at the main site and 12 positions at the backup PSAP. The emergency communications network supports more than 267,000 residents in the City and County of Durham, North Carolina now has North Carolina's first next generation 9-1-1 (NG9-1-1) network. Activated in July 2011, the new system provides the Durham Emergency Communication Center with advanced voice capabilities and the building blocks to support text messaging, cell phone pictures, video clips, and other data services through the Intrado Advanced 9-1-1 network, a secure emergency services Internet Protocol (IP) network that offers improved reliability and more life-saving capabilities than traditional 9-1-1 systems. The installation of Intrado's next generation 9-1-1 system has also enabled the Durham Emergency Communications Center to receive text to 9-1-1.

**State of Alabama**  
**ALABAMA 911 Board AL-NG911-RFP-16-001**  
**Attachment C Cost Proposal**

**AL-NG911-RFP-16-001**  
**Attachment C – Cost Proposal**  
**Table of Contents**

Tab	Tab Name & Hyperlink
1	<a href="#">Title Page</a>
2	<a href="#">Contents</a>
3	<a href="#">Instructions</a>
4	<a href="#">Instructions - Schedule 1</a>
5	<a href="#">Schedule 1 – Equipment and Implementation</a>
6	<a href="#">Instructions - Schedule 2-6 System Hosting</a>
7	<a href="#">Schedules 2 - 6 – Service Operation</a>

**Note to Respondents:** All pricing being sought under this RFP will be utilized to understand and evaluate your proposal.

**AL-NG911-RFP-16-001**  
**Attachment C – Cost Proposal**  
**Instructions**

**Overview**

Each respondent must complete the cost worksheets that follow, using the format as provided. Please see the specific completion instructions included on each individual tab.

Respondents are encouraged to indicate if they are unable to provide specific products or services as the best and final offer process will define/refine the specific products and services required from the selected respondent.

Each respondent should document any and all assumptions used for arriving at cost estimates in the following sections.

**The Cost Proposal** categorizes unit pricing into two main groups: Implementation (*One time price*) and Recurring (*Monthly price*). The Cost Proposal contains two sections. Section 1 is used for the functional components to implement and operate the 9-1-1 network and Sections 2-6 are specifically for hosted 9-1-1 services and operation.

**The Cost Model** is calculated from the Cost Proposal elements. Respondents do not need to develop a separate cost model.

Sample numbers have been placed into both the Cost Proposal spreadsheet as an illustration of how the spreadsheets work.

Respondents are expected to replace the sample numbers and modify the timeline to represent its proposal. These figures are not indicative of a possible budget.

RESPONDENTS ARE ADVISED THAT ALL ASSUMPTIONS MADE IN THE COST PROPOSAL AND ELSEWHERE IN THIS RFP REGARDING QUANTITIES (INCLUDING THE NUMBER OF PSAPS) ARE ESTIMATES ONLY,

SUCH QUANTITIES MAY INCREASE OR DECREASE. THE AGREEMENT IS FOR UNIT PRICES ONLY; AND WHERE APPLICABLE A MONTHLY RECURRING CHARGE FOR ONGOING OPERATIONS AND ADMINISTRATION.

OFFERORS, BY SUBMITTING THIS COST PROPOSAL, CERTIFY THAT THEY HAVE MADE A GOOD FAITH EFFORT TO ALLOCATE COSTS TO APPROPRIATE SERVICE CATEGORIES AND HAVE NOT ENGAGED IN UNBALANCED BIDDING OF ANY KIND.

**Note to Respondents:** All pricing being sought under this RFP will be utilized to understand and evaluate your proposal. All pricing included in these schedules will be on a firm, fixed monthly recurring cost basis for the transfer, implementation, and on-going operations of the system.

**Notes from the 911 Board:** The solution(s) and services sought through this RFP may be proposed as an integrated, comprehensive solution, or as a stand-alone component

representing a best in class service offering capable of being integrated with other components that will comprise the ANGEN ecosystem.

The Board may, at its discretion, integrate proposed solutions or components of proposed solutions in order to achieve an enterprise-wide, state-wide, best in class system that benefits all Alabama PSAPs and best serves the Board in fulfilling its duties under the law.

The Board would prefer an integrated solution with a designated primary vendor contractually responsible for providing the services as specified in this RFP.

The Board may, at its discretion, designate a contractual prime vendor and require contractual relationships, cooperative agreements, interconnection to and interaction with other system service providers or third parties as required or necessary for the operation of ANGEN

Schedule 1 will be used during the evaluation to determine a one time cost; and monthly recurring cost that the AL911 Board will assume if the respondent is selected as the vendor. Schedule 1 also serves as a model for the implementation and monthly recurring costs. Respondents are responsible for ensuring the accuracy of the sub-totals of each section and the summation of the grand total at the bottom of Schedule 1.

Payment for Implementation and monthly recurring charges will be based upon a formula comprised of PSAP installation, ESInet operation, Wireless Call Volume delivered and Text services. The Board will only pay monthly recurring charges for services that have been accepted and are documented as performing their intended function. Respondents shall negotiate the graduated payment schedule with the Board during the transition and migration stage until reaching 100% of the proposed Monthly Recurring Charge.

**AL-NG911-RFP-16-001**  
**Attachment C – Cost Proposal**  
**Instructions - Schedule 1**

**COST PROPOSAL:**

This RFP calls for unit pricing by Deliverable / Cost Area. Respondent will insert its unit prices into the Cost Proposal spreadsheet. The columnar structure shall not be changed.

Implementation Pricing: Includes the Non-Recurring and one time charges for purchasing the equipment and facilities designed to provide the service functionality.

Recurring (Monthly) Pricing: Includes monthly Administration and Operations of the system, and Project Management charges for the duration of the projected implementation period.

The Project Management charge shall encompass all costs associated with implementation of the system and is the only allowable charge prior to acceptance of the ESInet and first PSAP. Enter your recurring monthly charge for each of the following items:

AL-NG911-RFP ESInet Requirements

AL-NG911-RFP Specific Requirements

AL-NG911-RFP i3/NG Core Services Requirements

System Reporting and i3 Logging Requirements

Service and Support Requirements

Project Management and Planning Requirements

Electrical, Wiring and Cable Requirements

Other Required Items Charges - for items that the Vendor believes are needed but do not fit into one of the specified charge categories.

Please itemize any Other Required Items (add rows to spreadsheet if necessary)

At the bottom of the Cost Proposal spreadsheet please be sure to check and total all the monthly recurring charges.

An additional table is provided for System Hosting.

Please provide a monthly recurring cost for each of the two optional items.

--

Cost Proposal Column	Instructions
<b>Deliverable / Cost Area</b>	<p>The Deliverable / Cost Area has been pre-populated with the anticipated components required to deliver 911 service to the Alabama PSAP's. Each of these components relates to an existing component or desired functionality.</p> <p>Respondents shall use the list as a guide to prepare unit costs for each functional element. The table includes a set of instructions to help guide how pricing information is entered into the table so that a detailed cost can be generated.</p>
<b>Estimated one time (Non- Recurring - NRC) start up costs, capitol costs etc.</b>	The first three columns are used to enter Non-Recurring charges.
<b>Unit of Measure</b>	<p>Unit of measure is a figure used to calculate a total Non-Recurring charge based upon a Unit cost. This may be a Primary PSAP ; one time implementation milestones;</p> <p>It is the respondents responsibility to articulate what measure they are using to calculate their costs</p>
<b>Estimated Cost</b>	Estimated Cost is the cost of an individual component or system level functionality.
<b>Extended Price (Unit of Measure x Estimated Cost)</b>	The Extended price is a summation of the Unit of Measure multiplied by Estimated Cost.
<b>Ongoing Monthly Recurring Charges (MRC)</b>	Ongoing Monthly Recurring Charges are the monthly service fees billed to the AL911 Board by the system service provider.
<b>Unit of Measure</b>	<p>Unit of measure is a figure used to calculate a total Non-Recurring charge based upon a Unit cost. Ongoing operational costs are expressed in terms of months, days or hours.</p> <p>It is the respondents responsibility to articulate what measure they are using to calculate their costs</p>
<b>Unit Price</b>	Unit price is the monthly charge of a service function provided by the system service provider.
<b>Extended Price (Unit of Measure x Unit Price)</b>	Extended Price (Unit of Measure x Unit Price)

**AL-NG911-RFP-16-001**  
**Attachment C – Cost Proposal**  
**Schedule 1 – Equipment and Implementation**

This table indicates the pricing elements identified for requirements defined in AL-NG911 RFP ATTACHMENT D - Technical Specifications, for costs associated with the transfer, modification and implementation of the system (from date of contract execution to the end of the month statewide roll-out is completed). The successful Respondent is to group tasks/deliverables by the areas identified.

Instructions: Please fill in the cells shaded yellow. These items will be used to assign Cost components. Do not fill in the gray and blue cells. Note that the blue cells will populate automatically. Price example - ESinet configured at 8 PSAP's for a total of 80,000. 8 is entered in the unit of measure, \$10,000 entered in the estimated cost

Deliverable / Cost Area	Estimated one time (Nonrecurring - NRC) start up costs, capitol costs etc.			Ongoing monthly recurring costs (MRC)		
	Unit of Measure	Estimated Cost	Extended Price (Unit of Measure x Estimated Cost)	Unit of Measure	Unit Price	Extended Price (QTY x Unit Price)
<b>Section 2 - ANGEN ESinet Requirements</b>						
2.2 ANGEN ESinet Services		\$ -	\$ -	4,849,377	\$ 0.09	\$ 427,133.13
ESinet Deployment	118	\$ 3,596.60	\$ 424,398.80	118	\$ 748.68	\$ 88,344.24
PSAP IP Mesh Transport Network		\$ -	\$ -	118	\$ 1,714.67	\$ 202,331.06
IP Core Router Architecture (aggregation service routers)		\$ -	\$ -	4	\$ 2,897.00	\$ 11,588.00
Fiber to the PSAP (high availability option)		\$ -	\$ -	0	\$ 872.64	\$ -
Commodity IP (tertiary service provider connections)		\$ -	\$ -		\$ -	\$ -
Regulatory and Legislative Support		\$ -	\$ -		\$ -	\$ -
2.3 ANGEN Architecture Requirements		\$ -	\$ -		\$ -	\$ -
2.4 ANGEN ESinet Features and Functions		\$ -	\$ -		\$ -	\$ -
2.5 ANGEN Network Failover		\$ -	\$ -	0	\$ 1,714.67	\$ -
2.6 ANGEN Network Security		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ 424,398.80		\$ -	\$ 729,396.43
<b>Section 3 - ANGEN Specific Requirements</b>						
3.1 System Service Provider Coordination Requirements	0	\$ -	\$ -	0	\$ -	\$ -
Legacy T-1 Network Transport (OSP to tandems)	1,451	\$ 91.75	\$ 133,129.25	1,451	\$ 9.18	\$ 13,312.93
Originating Service Provider Coordination (wireless carrier)	2,500	\$ 183.50	\$ 458,750.00	2,500	\$ 18.35	\$ 45,875.00
Originating Service Provider Coordination (x-LEC)	1	\$ 1,027,436.00	\$ 1,027,436.00	1	\$ 48,643.00	\$ 48,643.00
Voice Message Services		\$ -	\$ -		\$ -	\$ -
Database Server and Software		\$ -	\$ -		\$ -	\$ -
pANI (psuedo ANI) and IP Provider ALI Records		\$ -	\$ -		\$ -	\$ -
Third Party Providers Interfaces (TCS and Intrado E2+ interfaces)		\$ -	\$ -		\$ -	\$ -
Inter-company ALI Server Connections		\$ -	\$ -	2,900,000	\$ 0.03	\$ 85,144.00
3.2 Interstate Interconnection Requirements	0	\$ -	\$ -	0	\$ -	\$ -
3.3 Text to 911 Requirements	0	\$ -	\$ -	0	\$ -	\$ -
Originating Service Provider coordination (wireless carrier)		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ 1,619,315.25		\$ -	\$ 192,974.93
<b>Section 4 - ANGEN i3 / NG Core Services Requirements</b>						
4.1 NENA i3 Core Functional Requirements	0	\$ -	\$ -	0	\$ -	\$ -
SIP Gateway		\$ -	\$ -		\$ -	\$ -
SS7 Legacy Gateways		\$ -	\$ -		\$ -	\$ -
ALI Interface		\$ -	\$ -		\$ -	\$ -
IP Call Routing Platform	2	\$ 125,000.00	\$ 250,000.00	12	\$ 6,250.00	\$ 75,000.00
4.2 Border Control Function (BCF)	0	\$ -	\$ -		\$ -	\$ -
4.3 Emergency Call Routing Function (ECRF)	0	\$ -	\$ -		\$ -	\$ -
4.4 Emergency Services Routing Proxy (ESRP)	0	\$ -	\$ -		\$ -	\$ -
4.5 Legacy Network Gateway (LNG)	2	\$ 325,000.00	\$ 650,000.00	2	\$ 2,850.00	\$ 5,700.00
4.6 Legacy PSAP Gateway (LPG)	0	\$ -	\$ -		\$ -	\$ -
4.7 Legacy Selective Router Gateway (LSRG)* if included	0	\$ -	\$ -		\$ -	\$ -
4.8 Location Validation Function (LVF)		\$ -	\$ -		\$ -	\$ -
4.9 Legacy Database Services		\$ -	\$ -	0	\$ -	\$ -
4.10 Disaster Recovery / Business Continuity		\$ -	\$ -		\$ -	\$ -
Continuity of Operations (Resiliency)		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ 900,000.00		\$ -	\$ 80,700.00
<b>Section 5 - System Reporting and i3 Logging Requirements</b>						
5.1 Reporting and Data Collection System Requirements	0	\$ -	\$ -	0	\$ -	\$ -
Remote Diagnostics		\$ -	\$ -		\$ -	\$ -
Performance Monitoring		\$ -	\$ -		\$ -	\$ -
Notification and Escalation		\$ -	\$ -		\$ -	\$ -
5.2 Statewide Statistical Monitoring	0	\$ -	\$ -	0	\$ -	\$ -
5.3 Operational Reporting and Logging	0	\$ -	\$ -	0	\$ -	\$ -
Logging Recording		\$ -	\$ -		\$ -	\$ -
System Reporting and Logging Requirements		\$ -	\$ -		\$ -	\$ -
5.4 Local Logging Recorder Interface	0	\$ -	\$ -	0	\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ -
<b>Section 6 - Service / Support Requirements</b>						
6.1 Customer Support Services		\$ -	\$ -		\$ -	\$ -
Network Operation, Administration and Management		\$ -	\$ -		\$ -	\$ -
PSAP Alerting and Remote System Status Alarming		\$ -	\$ -		\$ -	\$ -
Quality of Service (QoS) Monitoring and Reporting		\$ -	\$ -		\$ -	\$ -
Service Level Agreement (SLA) Monitoring and Reporting		\$ -	\$ -		\$ -	\$ -
Ongoing Development of New Public Safety Services		\$ -	\$ -		\$ -	\$ -
Spares		\$ -	\$ -		\$ -	\$ -
6.2 Help Desk		\$ -	\$ -		\$ -	\$ -
6.3 Trouble Handling and Ticketing Requirements		\$ -	\$ -		\$ -	\$ -
6.4 Training		\$ -	\$ -		\$ -	\$ -
6.5 Monitoring of Applications and Equipment		\$ -	\$ -		\$ -	\$ -
Intrusion Prevention and Detection		\$ -	\$ -		\$ -	\$ -
Identity and Access Management		\$ -	\$ -		\$ -	\$ -
6.6 Network Operations Center (NOC)		\$ -	\$ -		\$ -	\$ -
6.7 Alarm Categories		\$ -	\$ -		\$ -	\$ -
6.8 Scheduled Maintenance		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ -
<b>Section 7 - Project Management and Planning Requirements</b>						
7.1 Implementation Project Plan		\$ -	\$ -		\$ -	\$ -
Implementation Oversight		\$ -	\$ -		\$ -	\$ -
Cutover Planning		\$ -	\$ -		\$ -	\$ -
Migration Plan		\$ -	\$ -		\$ -	\$ -
7.2 System Test Plan		\$ -	\$ -		\$ -	\$ -
7.3 Transition Plan		\$ -	\$ -		\$ -	\$ -
7.4 Service Management Plan		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ -
<b>Section 8 - Electrical, Wiring, and Cable Requirements</b>						
8.1 Electrical		\$ -	\$ -		\$ -	\$ -
8.2 Electrical Interference		\$ -	\$ -		\$ -	\$ -
8.3 Wiring and Cabling		\$ -	\$ -		\$ -	\$ -
8.4 Grounding		\$ -	\$ -		\$ -	\$ -
8.5 Transient Voltage Surge Suppression		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ -
<b>Total Transfer and Implementation Cost</b>			\$ 2,943,714.05			\$ 1,003,071.35

**Assumptions and Comments**

The above pricing is not contractual until AT&T has specific informatino related to the following:  
 Specific information of equipment at each ANGEN Data Center based on sited visits  
 Specific information at each PSAP based on site visits  
 Confirmation on the number and size of Wireline / CLEC OSP and Wireless Circuits

**AL-NG911-RFP-16-001**

**Attachment C – Cost Proposal**

**Instructions - Schedule 2-6 System Operation**

<b>Schedules 2 and 6 – System Hosting</b>	<b>Instructions</b>
Schedule 2 On-going System Hosting Post Implementation from completion of statewide rollout Year 1	The Respondent(s) shall enter an annual price for the hosted services in the yellow shaded area. The sheet will calculate the extended price.
On-going System Hosting Post Implementation: Year 2	Same instructions as above
On-going System Hosting Post Implementation: Year 3	Same instructions as above
On-going System Hosting Post Implementation: Year 4	Same instructions as above
On-going System Hosting Post Implementation: Year 5	Same instructions as above
On-going System Hosting Post Implementation: Year 6 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 7 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 8 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 9 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 10 (Optional Extension)	Same instructions as above

**AL-NG911-RFP-16-001**

**Attachment C – Cost Proposal**

**Schedules 2 - 6 – Service Operation**

These schedules indicate the pricing for Respondents proposed services as defined in Attachment D for the ongoing hosting of the system starting the first full month after statewide roll-out is complete to the period ending five (5) years from contract execution and then for each of the five (5) annual renewal options.

Instructions: Please fill in the cells shaded yellow. These items will be used to assign Cost points. Do not fill in the gray and blue cells. Note that the blue cells will populate automatically. Example - Annual price of hosting service is \$120,000 multiplied by 12 months - \$1,440,000 total

Cost element	Annual price	Months	Total
Schedule 2 On-going System Hosting Post Implementation from completion of statewide rollout to the period ending Year 1	\$ 1,003,071.35	4	\$ 4,012,285.40
On-going System Hosting Post Implementation: Year 2	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 3	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 4	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 5	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 6 (Optional Extension)	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 7 (Optional Extension)	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 8 (Optional Extension)	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 9 (Optional Extension)	\$ 1,003,071.35	12	\$ 12,036,856.21
On-going System Hosting Post Implementation: Year 10 (Optional Extension)	\$ 1,003,071.35	12	\$ 12,036,856.21

**Assumptions and Comments**

The above pricing is not contractual until AT&T has specific information related to the following;  
Specific information of equipment at each ANGEN Data Center based on site visits  
Specific information at each PSAP based on site visits  
Confirmation on the number and size of Wireline / CLEC OSP and Wireless Circuits

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## Cost Proposal Narrative

The Respondent should provide a brief narrative (not longer than two pages) in support of each Cost Proposal item. The narrative should be focused on clarifying how the proposed prices correspond directly to the Respondent's Technical Proposal. For example, evaluators will expect detailed explanation of Maintenance and Support to correspond to Maintenance and Support items described in the Technical Proposal.

### AT&T Response:

AT&T ESInet™ provides ESInet Services with West Corporation including 9-1-1 Call Routing Services, Network Management of i3 functions and capabilities as well as 24X7 surveillance, monitoring, alarming, issues resolution, customer support services and maintenance services as a fully integrated service. We have attempted to break out the relevant costs of the service offering corresponding to the RFP-provided Attachment C Cost Proposal. However, we do not utilize every line item, and several line items and even entire sections are combined and noted below.

In Section 2 of the RFP response, we have included a number of AT&T categories. To AT&T, this includes the construction of AT&T ESInet™ capabilities in our AT&T Data Centers and developing a custom architectural design to utilize the State's Data Center Aggregation Centers (AGC), as well as the network connectivity between them. We have also provided pricing for AT&T Virtual Private Network (AVPN) connections to the PSAPs, along with local access. This includes hardware, software, and support, in addition to the IP link itself. There are many options AT&T makes available in this area to help the State reduce costs. Redundant failover ports with local diversity access is recommended. Determining accurate pricing for network components will require AT&T to have more detail about the PSAPs, the type of Ethernet connectivity that is available, and whether PSAP CPE can accommodate i3-compliant SIP connections. The estimates for network connectivity is a best effort based on information currently available, but can become more accurate with detailed PSAP information.

Section 3 provides pricing estimates for maintaining both Legacy Wireline and Wireless circuit connections to the State's Data Center AGC's. The rates for both Text to 9-1-1 and Text from 9-1-1 are included in the AT&T ESInet™ Service Offering in Section 2.

Section 4 provides pricing for additional equipment and services related to the State's Data Center AGC's. Many of the line items in this section are also included in the AT&T ESInet™ Service Offering in Section 2.

Section 5 items are all included with the AT&T ESInet™ Offering in Section 2.

Section 6, 7, 8 and 9 items are all included with the AT&T ESInet™ Offering in Section 2.

## Cost Assumptions, Conditions and Constraints

The Respondent should list and describe as part of its Cost Proposal any special cost assumptions, conditions, and/or constraints relative to, or which impact, the prices presented on the Cost Schedules. It is of particular importance to describe any assumptions made by the Respondent in the development of the Respondent's Technical Proposal that have a material impact on price. It is in the best interest of the Respondent to make explicit the assumptions, conditions, and/or constraints that underlie the values presented on the Cost Schedules. Assumptions, conditions or constraints that conflict with the RFS requirements are not acceptable.

### AT&T Response:

AT&T provides AT&T ESInet™ Services including 9-1-1 Call Routing Services, i3 functions and capabilities as well as 24X7 surveillance, monitoring, alarming, issues resolution, customer support services and maintenance services as a fully integrated service. In all cases where the quantity shown is 0 and there is no associated rate, the line item is included as part of AT&T's overall pricing. Additional line item assumptions and Comments are identified below.

## Section 2 - ANGEN ESInet Requirements

**Section 2.2 Line 14 - ANGEN ESInet Services** - AT&T Data Centers with AT&T ESInet™ capabilities are located within the State of AL, and regionally located for redundancy. The AT&T ESInet™ Service Offering prices is based on 2014 U.S. Census population in the State.

**Line 15** – ESInet Deployment is based on the number of PSAPs, and the estimated cost of installment services at each PSAP. Determining accurate pricing for proper installation will require AT&T to have more detailed information about the PSAPs, the type of Ethernet connectivity that is available, and whether PSAP CPE can accommodate i3-compliant SIP connections. The estimate for ESInet Deployment is a best effort based on information currently available, but can become more accurate with detailed PSAP information. Special construction charges may apply.

**Line 16** – IP Mesh Transport Network – AT&T Virtual Private Network (AVPN) connections to the PSAPs, along with options for local access connections. This includes hardware, software, and support, in addition to the IP link itself. There are many options AT&T makes available in this area to help the State reduce costs. Redundant failover ports with local diversity access is recommended. Determining accurate pricing for network components will require AT&T to have more detail about the PSAPs, the type of Ethernet connectivity that is available, and whether PSAP CPE can accommodate i3-compliant SIP connections. The estimate for network connectivity is a best effort based on information currently available, but can become more accurate with detailed PSAP information. Special construction charges may apply.

**Line 16** - IP Core Router Architecture (aggregation service routers) – AT&T EPLS-WAN connections from the State's Data Center AGC's to the AT&T ESInet™ capabilities in AT&T Data Centers.

**Line 18** - Fiber to the PSAP (high availability option). Only unit Cost was provided, not the number of units. This service is available on a PSAP specific basis and pricing will vary depending on PSAP location and available facilities. Special construction charges may apply.

**Line 19** - Commodity IP (tertiary service provider connections) AT&T can provide this service with specific requirements including estimated traffic volume for each tertiary service provided.

**Line 20** – Regulatory and Legislative Support - AT&T will support Regulatory and Legislative elements of NG9-1-1 at no additional costs.

**Section 2.3 –Line 21** ANGEN Architecture Requirements - included in the AT&T ESInet™ Service Offering in Section 2.

**Section 2.4 –Line 22** ANGEN ESInet Features and Functions - included in the AT&T ESInet™ Service Offering in Section 2.

**Section 2.5 Line 23** ANGEN Network Failover – Only unit Cost was provided, not the number of units. There are many options AT&T makes available in this area to help the State reduce costs. Redundant failover ports with local diversity access is recommended.

**Section 2.6 Line 24** ANGEN Network Security – included in the AT&T ESInet™ Service Offering in Section 2.

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## Section 3 - ANGEN Specific Requirements

**Section 3.1 Line 28** - Legacy T1 network transport (OSP to mated tandems). Fully managed Legacy Network Wireline circuit connections to State's Data Center AGC's. AT&T estimates 1,451 DS0 circuits.

**Line 29** - Originating Service Provider coordination (wireless carrier). Fully managed Wireless circuit connections maintained to State's Data Center AGC's. AT&T estimates 2,500 DS0 circuits.

**Line 30** - Originating Service Provider coordination (x-LEC). Fully managed Legacy Network backhaul circuit connections from Selective Routers to State's Data Center AGC's. AT&T estimates 1,451 DS0 circuits to backhaul from Legacy Selective Routers to the LNG's in the State's data centers.

**Line 35** – Inter-company ALI Server Connections - AT&T and West can technically support a State-wide ALI database with an initiative to host 100% of the State's ALI records. AT&T and West can support the steering requirements for ALI services as defined in the RFP. However, the ability to transition non-AT&T ALI records to the AT&T system will require authorization and agreements from the State of Alabama and from non-AT&T ALI provider for those records.

**Section 3.2 Line 36** - Interstate interconnection Requirements - – included in the AT&T ESInet™ Service Offering in Section 2.

**Section 3.3 Line 37** – Text to 911 Requirements - – included in the AT&T ESInet™ Service Offering in Section 2.

## Section 4 - ANGEN i3 / NG Core Services Requirements

**Section 4.1 Line 41** NENA I3 Core Functional Requirements – included in the AT&T ESInet™ Service Offering in Section 2.

**Section 4.1 Line 45** IP Call Routing Platform – Muxing equipment, installation and maintenance at State's Data Center AGC's.

**Section 4.2 Line 46** Border Control Function (BCF) – included in the AT&T ESInet™ Service Offering in Section 2.

**Section 4.3 Line 47** Emergency Call Routing Function (ECRF) – included in the AT&T ESInet™ Service Offering in Section 2.

**Section 4.4 Line 48** Emergency Services Routing Proxy (ESRP) – included in the AT&T ESInet™ Service Offering in Section 2.

**Section 4.5 Line 49** Legacy Network Gateway (LNG) – installed, managed and maintained at the State's Data Center AGC's.

**Sections 4.6 thru 4.10 Lines 50 thru 55** – included in the AT&T ESInet™ Service Offering in Section 2.

## Section 5 - Requirements

Sections 5.1 thru 5.4 Lines 58 thru 66 – included in the AT&T ESInet™ Service Offering in Section 2.

## Section 6 - Service and Support Requirements

Sections 6.1 thru 6.8 Lines 69 thru 84 – included in the AT&T ESInet™ Service Offering in Section 2.

## Section 7 - Requirements

Sections 7.1 thru 7.4 Lines 87 thru 93 – included in the AT&T ESInet™ Service Offering in Section 2.

## Section 8 - Electrical, Wiring, and Cable Requirements

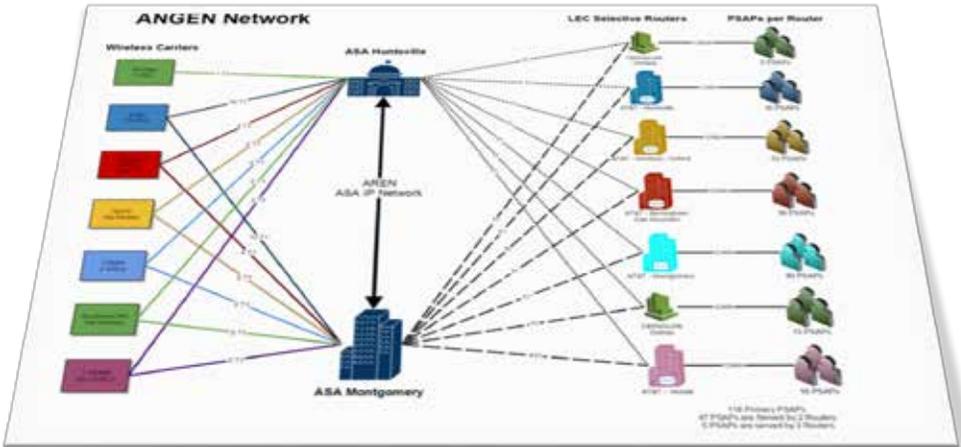
Sections 8.1 thru 8.5 Lines 96 thru 100 – included in the AT&T ESInet™ Service Offering in Section 2.2 Line 17.

### Other Assumptions and Comments

All pricing are estimates and are not contractual. AT&T needs specific information related to the following:

- Equipment at each ANGEN Data Center based on site visits.
- Specific information at each PSAP based on site visits.
- Confirmation on number and size of Wireline / CLEC OSP circuits.
- Confirmation on number and size of Wireless circuits.

**AL-NG9-1-1-RFP-16-001 - ATTACHMENT D TECHNICAL SPECIFICATIONS**



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## ATTACHMENT D TECHNICAL SPECIFICATIONS

### **AL-NG9-1-1-RFP-16-001**

#### SECTION 1 RESPONSE INSTRUCTIONS

##### 1.1 GENERAL RESPONSE INSTRUCTIONS

Respondents must respond with either COMPLY, NON COMPLY or EXCEPTION to all of the sections and requirements in this RFP.

It is recommended that all detailed responses are located under the section heading and section verbiage to aid in evaluation. Enter your response(s) in line with the sections and requirements at the end of each section. If no clear order is followed; the response may be disqualified.

Respondents that take an EXCEPTION to a particular requirement must provide an alternative to the required feature or function specified. The alternative must describe in detail how it meets the original requirement and must include any other pertinent information that may be necessary to properly consider the alternative being offered (i.e. diagrams, enhanced capability, design efficiency, cost savings, etc.).

The Board recognizes that in some cases Respondents may be able to provide a service or function that is superior to the requirements listed. If the Respondent wishes to present such an alternative, an EXCEPTION should be used to clearly articulate the functionality that Respondents would like to propose as an alternative for evaluation.

The requirements specified in this RFP are identified as MUST have, SHALL have, REQUIRED, REQUIRES, or REQUIREMENT(S).

Each proposal will be evaluated according to how well the requirements have been addressed.

Features and functions listed as DESIRABLE are not required. Desirable features and functions add value to a requirement. Respondents are encouraged to provide desirable features and functions where they have an opportunity to maximize the value to the Board while also satisfying the underlying requirement.

Desirable features, functions or elements are described in the RFP as SHOULD, MAY, COULD or DESIRED.

## 1.2 SCOPE OF PROCUREMENT

### 1.2.1 PURPOSE

The Alabama 9-1-1 Board (AL9-1-1, the Board) seeks competitive bids from qualified vendors to provide integrated network services for the operation of the ANGEN Network currently serving the PSAPs of Alabama. Alabama is currently served by a wireless 9-1-1 call delivery network known as ANGEN.

The purpose of this procurement is to ensure that at a minimum, the current services provided by the existing ANGEN Network are continued and improved upon as technology, standards, and societal demands evolve.

The AL9-1-1 Board invites qualified vendors with documented expertise and experience to submit proposals to provide wireless and wireline E9-1-1 call delivery, i3 ESInet Network Services, reporting, monitoring, service and support for the operation of the ANGEN Network.

#### AT&T Response:

Comply.

Commented [TMA1]: JCR, Dale & Sonya – we may be able to include the exec summary in this section.

### 1.2.2 PROJECT OVERVIEW

This procurement will result in the selection of a service provider or a combination of service providers whose proposed solution(s) and services as sought by this RFP will at a minimum, provide the existing level of service as provided by the current ANGEN network to include all existing capabilities, functions, components and ancillary services to all Alabama PSAPs either directly or in collaboration with other systems, services and providers both in Alabama and in adjoining states (MS, TN, FL and GA).

***This RFP does not include PSAP CPE, PSAP call taking equipment, furniture, computers or other operational systems required by PSAPs. It is focused only on the services required for the operation of the ANGEN Network and the services it provides to Alabama PSAPs.***

The solution(s) and services sought through this RFP may be proposed as an integrated, comprehensive solution, or as a stand-alone component representing a best in class service offering capable of being integrated with other components that will comprise the ANGEN ecosystem.

The Board may, at its discretion, integrate proposed solutions or components of proposed solutions in order to achieve an enterprise-wide, statewide, best in class system that benefits all Alabama PSAPs and best serves the Board in fulfilling its duties under the law.

The Board would prefer an integrated solution with a designated primary vendor contractually responsible for providing the services as specified in this RFP.

The Board may, at its discretion, designate a contractual prime vendor and require contractual relationships, cooperative agreements, interconnection to and interaction with other system service providers or third parties as required or necessary for the operation of ANGEN.

Through this procurement the Board seeks to procure a solution or combination of solutions that:

- Are designed to industry standard including the NENA i3 standard (Section 1.6)
- Provides or supports a foundation for NG9-1-1 and is designed to support or interoperate with Core i3 functionality (Section 4)
- Are secure and resilient to cyber-attack, penetration, abuse or misuse (Section 2)
- Provide the ability to alarm, report, monitor, manage and support on a 24/7/365 basis (Section 6)
- Be able to support or integrate with Interim SMS Text-to-9-1-1 solutions that are currently in-place or planned via delivery methods as prescribed by the Board, as per FCC order or by Carrier consent decree (Section 3)
  - Both inbound and outbound via a TCC and/or through the use of direct SIP based MSRP messaging as prescribed in NENA i3
- Provides or Supports Wireless and Wireline E9-1-1 Call Routing and Data Delivery (Section 3)
  - Is capable of the primary receipt, routing and delivery of Wireless 9-1-1 calls from wireless carriers via an ESInet to any PSAP throughout Alabama and neighboring states (MS, TN, GA, FL) or
  - A solution capable of supporting, integrating with and assisting in the delivery of Wireline E9-1-1 Calls to any Alabama PSAP and neighboring states.
  - A solution capable of supporting, integrating with and assisting in the delivery of Wireless E9-1-1 Calls to any Alabama PSAP and neighboring states.
- Provides or supports Increased fault tolerance, reliability, resiliency and disaster recovery across Alabama (Section 2)
- Provides for or supports Enterprise wide call accounting and data collection (Section 5)

#### AT&T Response:

Comply. All items above have been addressed in the following sections of the RFP.

#### 1.2.3 SCOPE OF SERVICES

The Board is seeking to procure services from qualified vendors that include the highest degree of resiliency, reliability and redundancy to ensure service availability in keeping with industry standard and best practices.

The services sought by this RFP include:

1. ESInet network design, management, and operation services
2. NG, i3 core functions and capabilities
3. Wireless and Wireline E9-1-1 call routing and reporting services
4. Text to 9-1-1 services

5. Enterprise/State-wide data collection and reporting services on all ANGEN facilitated transactions
6. System and component level monitoring, alarming, diagnostics and reporting services
7. Disaster recovery and system restoration services
8. 24/7/365 Help desk, trouble ticketing and customer facing support services
9. 24/7/365 Network operations center (NOC) monitoring services
10. Installation, testing, maintenance and on-site support services
11. Project management services for the planning, design, testing, installation and operation of the system or systems

**AT&T Response:**

Comply. All items above have been addressed in the following sections of the RFP.

The Board does not favor one technology or platform. This RFP is designed to allow providers to package, represent and demonstrate their services. The Board will evaluate each service on its own merit to determine the best solution(s) for the State of Alabama.

This overview of the Scope of the effort is meant to provide a high level understanding of the objectives. This technical specification provides greater detail of the requirements in the following sections.

**AT&T Response:**

Comply. Read and understood.

### 1.3 STANDARDS

Respondents shall demonstrate their industry knowledge and describe their commitment to providing standards based solutions and services.

The Board may disqualify or reject non-standard or proprietary systems that may hinder NG9-1-1 implementation, limit interoperability, or that might restrict the State from interconnecting to a regional or national 9-1-1 system in the future.

Throughout the duration of the project, Respondents shall maintain compliance with all standards and ensure that the products, solutions and services provided for ANGEN evolve and adapt as the standards evolve.

In addition to all other standards set forth herein and in addition to all other NENA i3 standards, the system shall comply with the following standards:

- NENA 08-003 v1 Detailed Functional and Interface Specification for the NENA i3 Solution, Stage 3 Version 1
- NENA 08-002 NENA Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3)
- NENA 08-751 NENA i3 Technical Requirements Document

- NENA 04-001 v2 PSAP E9-1-1 PSAP Equipment
- NENA 58-001 NENA IP-Capable PSAP Minimum Operational Requirements Standards
- NENA 58-501 IP PSAP 9-1-1 System Features and Capabilities
- NENA 75-001 Security for Next Generation 9-1-1 Standard (NG-SEC), NENA 75-001 v1, and NENA 04-503 v1
- NENA 75-502, NENA 04-502 v1, NENA 04-503 v1, NENA 08-506 v1, NENA 08-752 v1, NENA 71-502 v1, NENA STA-003
- Applicable Internet Engineering Task Force Standards (IETF), such as IP protocols, IP routing protocols, SIP, RTP, LoST, and the PIDF-LO
- NENA 08-506 Emergency Services IP Network Design for NG9-1-1

While specific standards and documents are referenced in the list above, the Board acknowledges that work on these standards is underway and that many of these standards are in the process of being updated and at the time of RFP distribution may now be referenced by a different number or nomenclature. If there are any discrepancies between the items listed above and a current standard or informational document, the most current version will apply.

Respondents shall describe in detail in the response how they shall meet such standards in their design.

#### **AT&T Response:**

Comply. The AT&T ESnet provides a Next Generation 9-1-1 (NG9-1-1) solution that adheres to industry standards. The AT&T ESnet solution system complies with NENA 08-003 which in itself is based upon IETF RFCs such as SIP (RFC 3261), LoST (RFC 5222), PIDF-LO (RFC 4119 and successive updates), and IETF ECRIT best practices documents and ANSI standards. The AT&T ESnet solution network architecture adheres to the guidelines and recommendations of the NENA ESIND (ESnet Network Design) The AT&T ESnet meets the security criteria as defined in the NENA NG-SEC specifications for NG9-1-1 security. AT&T ESnet service adheres to the NENA i3 standards for NG9-1-1 models and offers customers transition strategies to an NG9-1-1 end state while maximizing investment and leveraging existing network assets. As standards are ratified and there is a market demand for new capability, AT&T will work with industry providers to develop and test, to the new standards. We cannot determine what, if any, additional costs would be associated to future capabilities.

#### **Federal Communications Commission Rules**

All equipment must conform to Federal Communications Commission (FCC) Rules Part 15, Class A (commercial, non-residential radiation and conduction limits) for electromagnetic interference (EMI).

#### **Other Industry Standards**

Where applicable, all equipment proposed to support or operate ANGEN must comply with applicable industry standards, such as:

- Underwriters Laboratories (UL)
- International Organization of Standards (ISO)
- Open Systems Interconnection (OSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- American National Standards Institute (ANSI)
- Electronic Industries Alliance (EIA)
- Telecommunications Industry Association (TIA), (including ANSI/EIA/TIA-568 Commercial Building Telecommunications Wiring Standards), etc.

**AT&T Response:**

Comply. Where applicable, AT&T ESInet equipment meets the standards above. We are committed to providing NextGen 9-1-1 solutions that adhere to the industry standards listed above. As new standards are ratified, we will work diligently with standards bodies to develop and test to the new standards.

*1.3.1 OPEN STANDARDS*

Respondents shall propose a system that utilizes an Open Standards methodology.

The proposed system shall be subject to standards that enhance open standards and increase interoperability such as ITU, IEEE 802 at ISO Layer-2, and IP and TCP, as defined by the IETF in the applicable RFCs, at ISO Layer-3 and above.

If proprietary standards or protocols are used within a proposed solution; Respondents shall disclose the proprietary nature and discuss any limitations that may result.

**AT&T Response:**

Comply. The AT&T ESInet solution is built on an open standards-based platform. The system complies with SIP (RFC 3261), LoST (RFC 5222), PIDF-LO (RFC 4119 and successive updates), NENA 08-003, IETF ECRIT best practices, and ANSI standards. The ESInet is designed on the basic principle of having no single point of failure. It provides open standards-based interfaces for interconnecting to today's existing legacy Time Division Multiplexed (TDM), point-to-point Bearer channel trunking, as well as open, standards-based Session Initiation Protocol (SIP) interfaces for connecting to the most advanced carrier switches.

AT&T leverages a full suite of features within the switched environment to provide proper failover. These technologies include: Spanning Tree Protocol (STP); VRRP, Dot1Q trunking; LACP (IEEE 802.3ad). The routers/switches that connect the AT&T network infrastructure are interconnected with two physical connections (bonded using LACP) carrying actual switch trunking messages, as well as STP and VLAN Trunk Protocol (VTP). Another dual-port bonded link is utilized to carry routing traffic only. Each physical link resides on different blades within each router/switch ensuring optimal redundancy. The bonding of these two ports provides a level of separation between the two switches based upon the type of traffic (Layer 2 vs. Layer

3). This utilization of bonding provides redundancy and reliability should any single Ethernet blade or individual port fail.

#### 1.4 ANGEN BACKGROUND

The state of Alabama has a long history of leadership in 9-1-1 services, claiming the nation's first 9-1-1 call in 1968 over a local system in the town of Haleyville soon after AT&T announced the designation of 9-1-1 as a national emergency number.

More than 40 years later, the state's circuit-switched copper-wire system was struggling to keep up with telecom advances that included wireless mobile phones and Voice over IP.

Work on the present day ANGEN system began in June 2012. Wireless traffic is the current primary focus of the ANGEN system because it accounts for the majority of emergency calls in Alabama, as much as 70 percent in some places.

The ultimate goal of ANGEN is to provide NG9-1-1 services that combine voice, video, text and data on a single emergency communications platform, to let callers use the services they are accustomed to on their smart phones and other devices when making emergency calls, as well as provide additional information to first responders.

ANGEN relies upon and uses the Alabama Supercomputer Authority backbone network (ASA) for interconnection between two aggregation points located in Huntsville AL and Montgomery AL.

All wireless carriers providing service in AL interconnect and aggregate all circuits used for wireless 9-1-1 traffic redundantly to these two aggregation points. This forms the basis for the current level of service for ANGEN.

#### **Current ANGEN Partners include:**

**Local 9-1-1 Districts** – All counties and some cities have 9-1-1 Districts to set policy and manage the local PSAP or PSAPs. County Commissions or City Councils appoint the District Boards, or the elected officials sometimes serve as the 9-1-1 Board.

**Alabama 9-1-1 Board** – The board is charged with administering the \$1.75 collected monthly from each phone account for 9-1-1 expenses. The Alabama 9-1-1 Board administered the grant awarded to the Alabama Department of Homeland Security, which partially funded the implementation of ANGEN.

**Bandwidth Inc** – current system service provider provides the hardware, software, and support services to route wireless 9-1-1 calls to the proper PSAP using the legacy Selective Routers. There are two core facilities in different parts of the state, either of which can handle the entire State if needed.

**Alabama Supercomputer Authority (ASA)** – Provisions and manages the physical IP network and the redundant and diverse back-bone network that connects the two core facilities in Huntsville and Montgomery.

**Current ANGEN Network Diagram**

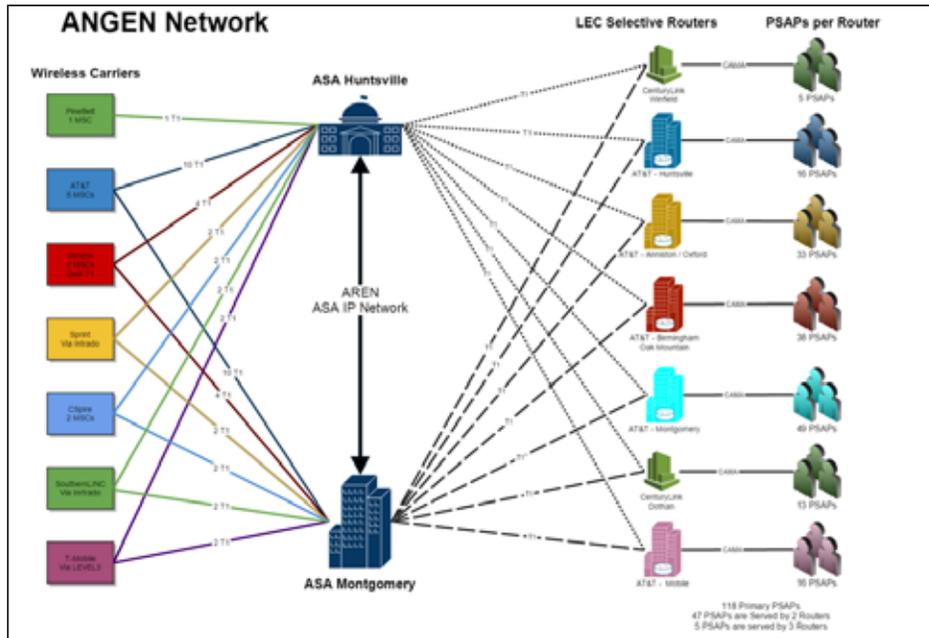


Figure 1 - Current ANGEN Connectivity Diagram

The diagram above represents the logical network connectivity currently employed by the ANGEN system. This diagram is current as of the distribution of this RFP. This diagram will be used and referenced here for the purposes of defining certain requirements and design considerations for any proposed solutions offered by Respondents.

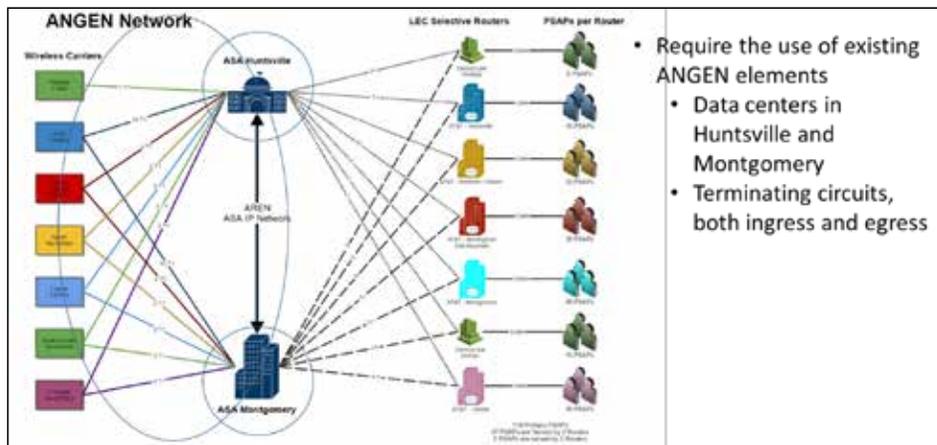


Figure 2 – Current ANGEN Component Re-Use Diagram

The Board’s preference is to reuse and repurpose the existing elements of ANGEN represented in the diagram above. Respondents must take this into consideration in any solution proposed and designed in response to this RFP.

*Due to the critical nature of operational specifics regarding the capabilities and operation of ANGEN, additional details and information related to the current ANGEN design, configuration, capabilities, connections and operations will be shared with Respondents deemed qualified after the initial receipt of proposals to this RFP.*

**ANGEN 2015 Operating Metrics**

2015 ANGEN Call Volumes By County			
County	2015 Total	Average Month	% State
Jefferson	571,830	47,653	20.9077%
Mobile	284,576	23,715	10.4049%
Montgomery	210,670	17,556	7.7027%
Madison	152,949	12,746	5.5922%
Tuscaloosa	138,640	11,553	5.0691%
Baldwin	77,515	6,460	2.8342%
Lee	70,111	5,843	2.5634%
Shelby	61,533	5,128	2.2498%
Houston	56,803	4,734	2.0769%
Etowah	55,720	4,643	2.0373%
Calhoun	51,523	4,294	1.8838%
Russell	48,684	4,057	1.7800%
Morgan	46,305	3,859	1.6930%

<b>2015 ANGEN Call Volumes By County</b>			
Talladega	45,321	3,777	1.6571%
Lauderdale	41,298	3,442	1.5100%
Dallas	41,044	3,420	1.5007%
Cullman	34,702	2,892	1.2688%
Marshall	33,925	2,827	1.2404%
St Clair	33,867	2,822	1.2383%
Elmore	32,522	2,710	1.1891%
Walker	31,516	2,626	1.1523%
Limestone	25,180	2,098	0.9206%
Colbert	24,895	2,075	0.9102%
Escambia	24,571	2,048	0.8984%
Chilton	23,117	1,926	0.8452%
Blount	22,896	1,908	0.8371%
Autauga	21,362	1,780	0.7811%
Coffee	21,178	1,765	0.7743%
Dale	20,105	1,675	0.7351%
Butler	19,534	1,628	0.7142%
DeKalb	19,174	1,598	0.7011%
Chambers	18,931	1,578	0.6922%
Marion	17,552	1,463	0.6417%
Covington	16,703	1,392	0.6107%
Marengo	16,251	1,354	0.5942%
Pike	15,907	1,326	0.5816%
Tallapoosa	15,805	1,317	0.5779%
Franklin	15,769	1,314	0.5766%
Macon	15,523	1,294	0.5676%
Sumter	15,033	1,253	0.5496%
Pickens	14,943	1,245	0.5464%
Jackson	14,942	1,245	0.5463%
Monroe	13,168	1,097	0.4815%
Lawrence	12,819	1,068	0.4687%
Greene	12,689	1,057	0.4639%
Clarke	12,583	1,049	0.4601%
Hale	11,516	960	0.4211%
Barbour	11,360	947	0.4154%
Geneva	10,746	896	0.3929%
Cherokee	10,580	882	0.3868%
Lowndes	10,263	855	0.3752%
Perry	10,199	850	0.3729%
Winston	10,084	840	0.3687%

<b>2015 ANGEN Call Volumes By County</b>			
Conecuh	9,252	771	0.3383%
Bibb	8,457	705	0.3092%
Cleburne	7,841	653	0.2867%
Wilcox	7,615	635	0.2784%
Washington	7,603	634	0.2780%
Lamar	6,787	566	0.2482%
Crenshaw	6,629	552	0.2424%
Randolph	6,609	551	0.2416%
Choctaw	6,242	520	0.2282%
Fayette	5,648	471	0.2065%
Henry	4,910	409	0.1795%
Bullock	4,475	373	0.1636%
Clay	3,353	279	0.1226%
Coosa	3,174	265	0.1161%
<b>Grand Total</b>	<b>2,735,027</b>	<b>227,919</b>	<b>100.0000%</b>

*Table 1 - 2015 ANGEN Call Volumes by County*

The table above represents the ANGEN operational call volumes by AL county for 2015. These figures represent all Wireless E9-1-1 calls processed in Alabama in 2015 and processed by the ANGEN system. This table can be used for reference in design considerations of any proposed solutions provided in response to this RFP.

**Current ANGEN Call Volumes by Month 2015**

The chart below depicts actual wireless E9-1-1 call volumes by month of the ANGEN system. The information represented below can be used for estimating system capacities and call volumes and can be used as a basis for developing initial cost estimates.

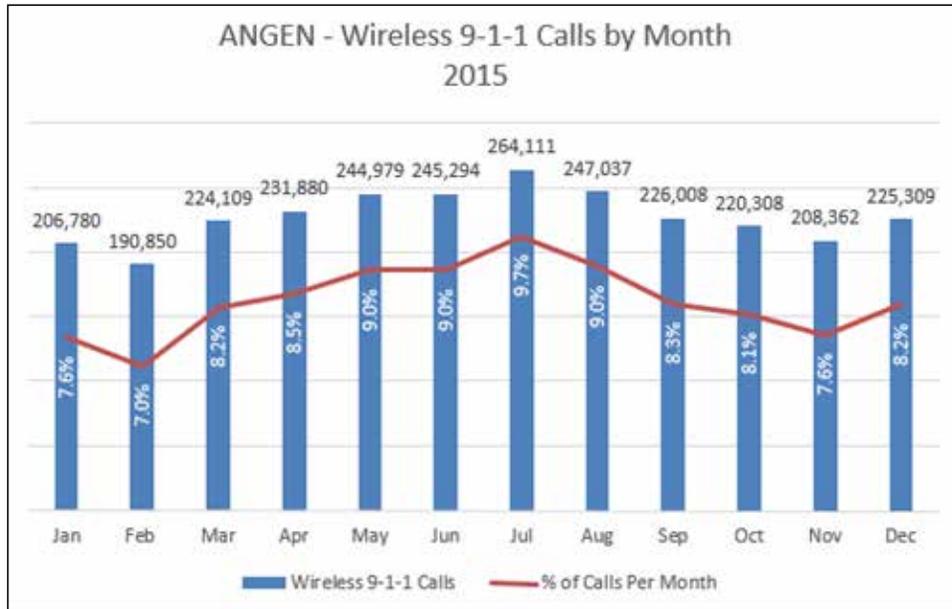


Figure 3 - Chart of ANGEN Call Volumes by Month 2015

**Current ANGEN Call Routing Diagram**

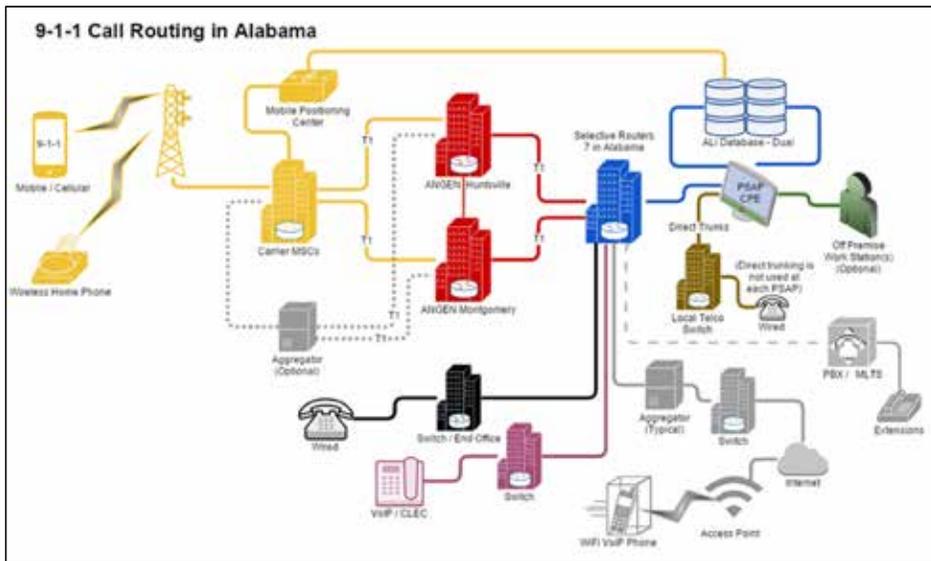


Figure 4 – Current ANGEN Call Routing Diagram

The diagram above provides the logical call flow and routing of the current ANGEN system. Additional details include:

- Each carrier purchases the network to the Core facilities and the State's vendor purchases the circuits to the selective routers.
- Emergency Communications Districts (ECDs) purchase the circuits from the selective routers to the PSAP.

## SECTION 2 ANGEN ESINET REQUIREMENTS

This section provides the ANGEN ESInet requirements and design considerations for Respondent's to this RFP.

### 2.1 ANGEN ESINET DESIGN GOALS AND OBJECTIVES

#### ANGEN Conceptual Design Diagrams for Reference

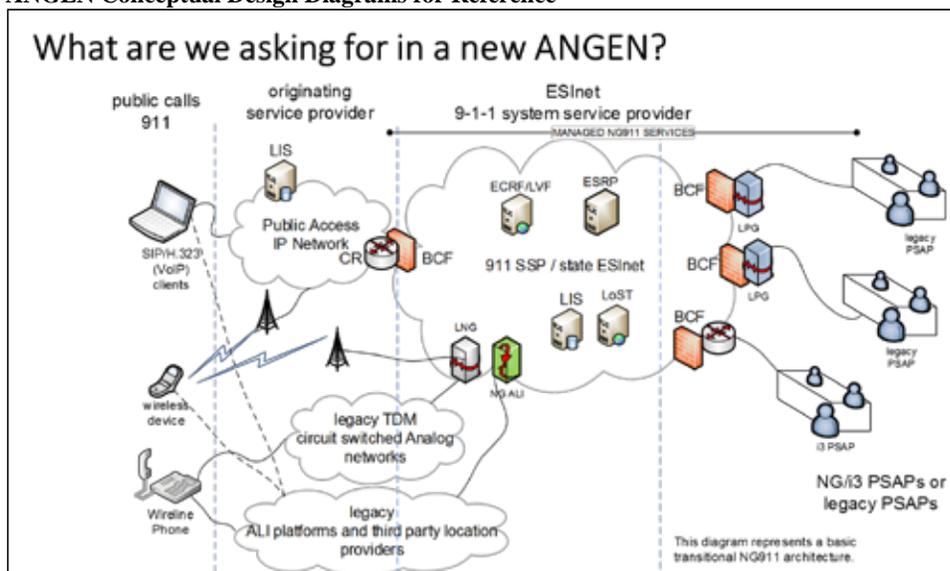


Figure 5 - ANGEN Conceptual Design Diagram

The diagram above represents the conceptual end state of the Future ANGEN system and services as desired by the Board and sought by this RFP. The ESInet will be designed to support and facilitate the operational services provided by the ANGEN system functional elements represented in the diagram above.

AT&T Response:

Comply.

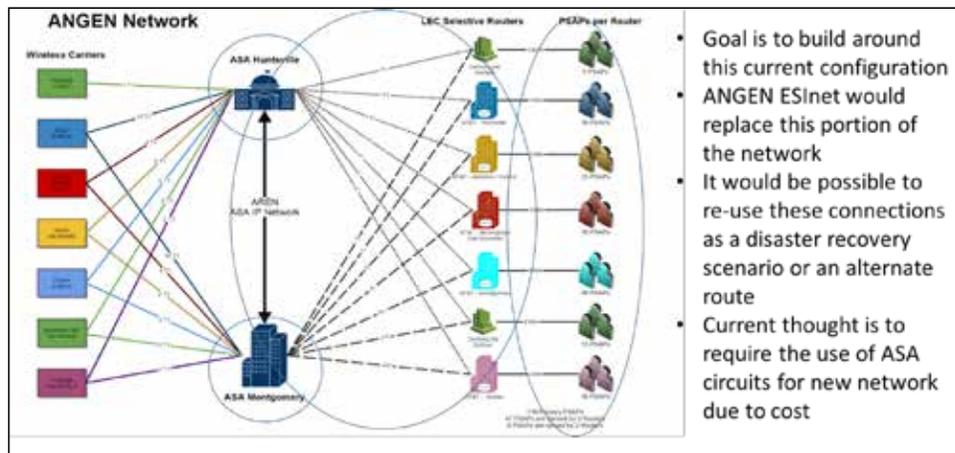


Figure 6 - ANGEN ESInet Goals and Design Considerations

**PSAP Information**

Alabama is made up of 67 counties with a population of 4,850,000. This population is served by 88 Emergency Communications Districts representing 118 Primary PSAPs. For the purposes of this procurement, the following number of PSAPs are within the scope of this project and anticipated services.

1. There are 118 Primary PSAP’s in the state.
2. There are 88 ECDs in the state

For the purposes of this procurement, any solutions or services that require provisioning to a PSAP, the number of PSAPs to be considered will be 118 as explained and derived above.

All of the 118 PSAPs are currently operational and fully deployed E9-1-1, Wireless Phase 1 and Phase 2.

*Specific address information for each of the 118 Alabama PSAPs covered by this RFP will be made available to qualified respondents as appropriate and necessary for the refinement of costs and designs of proposed solution(s).*

**AT&T Response:**

Comply.

**2.2 ANGEN ESINET SERVICES**

The Board seeks network and operations services from a provider or a combination of providers to implement an Emergency Services IP-network (ESInet) to deliver or support the delivery of voice, text, or other emergency communications related data to the PSAP’s throughout Alabama and in the adjoining states of MS, TN, GA and FL or as may be designated by the Board.

The ESInet(s) will be the foundational technology for keeping Alabama on the forefront of the transition to Next Generation 9-1-1 features, functions and capabilities during the term of the contract and will form the Core technology of the ANGEN ecosystem.

Respondents interested in providing ESInet services must design and provide an IP based network solution with the ability to connect and interconnect to other regional, state and potentially national emergency services networks (i.e. FirstNet).

The proposed solution must at a minimum deliver the same functionality of the current ANGEN system as detailed in Section 1 of this specification.

Successful respondents will provide all services necessary for the development, implementation operation, monitoring and maintenance of their proposed ESInet including:

- Design, installation, testing, interconnection and operation of ESInet components required to operate or support the operation of ANGEN
- Maintenance and repair of those elements of the ESInet and interconnections owned, operated, installed or controlled by Respondents as part of their solution
- Completion of as built drawings, sketches and/or schematic materials related to the ESInet
- A data collection and reporting system for all ESInet elements so operational metrics of the ESInet can be monitored, reported and analyzed

#### AT&T Response:

Comply. AT&T's proposal provides the State of Alabama with a comprehensive solution for an Emergency Services IP Network (ESInet) with NENA i3 core functional elements which will also enable interoperability with neighboring regional IP networks. As per the request of the State of Alabama, the proposed solution will provide standards-based interfaces to provide a Network-to-Network Interface that interoperates with other ESInets via secure and highly reliable facilities. In addition, AT&T participates and monitors standards activities to ensure that the solution evolves to comply with national industry standards. AT&T has always been a leader in the public safety solution and technology domain without compromising the quality and integrity of the 9-1-1 infrastructure.

The solution deploys redundant and diverse components providing the i3 architecture, such as but not limited to, ECRF, ESRP, PRF, BCF, and LNG functionality. The solution has no single point of failure, positioning the State of Alabama with a unique foundation to deploy future NG9-1-1 functions as and when they become available.

The proposed solution provides legacy network interoperability and converts all legacy calls to SIP at the ingress of the network, providing Alabama traffic with SIP call delivery from the ingress network demarcation points to the PSAP CPE. These SIP calls are delivered via the public safety grade i3 AT&T ESInet.

Per the State of Alabama's request of not just providing an IP-selective router to replace the current 9-1-1 infrastructure, the proposed solution offers the State of Alabama the ability to immediately deploy i3 GIS-based call routing, as well text messaging, to the PSAPs. The solution accommodates delivery of originating media types without modification to the PSAP using standards-based IP interfaces. AT&T ESInet solution provides the State of Alabama with a Next Generation 9-1-1 transitional plan that provides forward and backward compatibility with telephone service providers (TSPs), call processing equipment, and location acquisition functionality. AT&T understands that the legacy ALI solution may continue to exist for some time while TSPs enhance their systems and solutions to meet i3 specifications. The solution is designed to query legacy ALI databases when and where necessary and deliver location data via PIDF-LO. This bridges the gap for the PSAPs that are not ready to accept i3 protocols, and for TSPs who may not be ready to deliver location data along with their respective 9-1-1 calls.

The solution provides the capability to allow State authorities to monitor active in-progress 9-1-1 calls. The solution also provides drill down features for a particular call in progress to determine its originating carrier, switching elements, call disposition applied, call routing rules applied, and end point treatment of the call.

The AT&T ESInet solution's migratory path provides a multi-stage approach that will be customized more specifically to the State of Alabama's desires and operational requirements. The first phase of the deployment will connect the Alabama Aggregation Site to the AT&T ESInet LNGs and the AT&T ESInet Core sites. The next phase delivers core next generation services for a complete end-to-end, IP 9-1-1 call processing system which is in compliance with the NENA i3 standards. Under this phase, the ESRP, ECRF, and PRF functions will be deployed to interoperate with the LNG function already deployed in the first phase of the migration path. Also, in this environment mechanisms are established to deliver location information by value or by reference. During the final phase TSP circuits are rehomed and legacy selective routers are decommissioned.

This phased approach allows the State of Alabama to accomplish an expansive project in a cost effective manner without compromising the requirements of a complete end-to-end Next Generation 9-1-1 solution. The phased approach provides the State of Alabama with a succinct and safe migratory path from today's legacy environment to a complete, next generation i3 environment as the technology of the TSPs and location acquisition stakeholders evolve.

### 2.3 ANGEN ESINET ARCHITECTURE REQUIREMENTS

Any ESInet proposed in response to this RFP must conform to NENA 08-506, Emergency Services IP Network Design for NG9-1-1 (ESIND) and other industry standards as referenced in Section 1 of this specification.

ESInet design requirements include but are not limited to:

- The ESInet shall be designed with as few single points of failure as practical. Diverse network elements and paths, redundant equipment, and other technical and physical means

will be used to reduce the potential for total loss of service where a single point of failure is not reasonably avoidable.

- The ESInet shall be designed with a minimum level of bandwidth to support delivery of calls and associated data from originating service providers or other integrated ESInets to the PSAPs.
- The ESInet shall be designed and deployed using a highly reliable and redundant architecture.
- Availability, diversity, redundancy and resiliency shall be the guiding ESInet design principals
- The ESInet design shall support the ability to automatically reroute traffic to alternate routes or systems in order to bypass network outages and system failures.
- The ESInet design shall offer the ability to prioritize critical traffic at multiple levels by importance of applications or users
- The ESInet design shall be scalable and have the ability to scale without adverse effects on performance or costs
- The ESInet shall be designed to support a guaranteed Quality of Service (QoS) level
- The ESInet shall be designed to support the automatic adjustment of traffic priorities in order to meet established QoS levels as defined in NENA 08-003
- The ESInet design shall support the ability to ensure performance through the use of traffic shaping and traffic policing.
- The ESInet shall be designed to operate on a 24x7x365 basis.
- An ESInet design that utilizes the most cost effective and feasible combination of transport technologies available to deliver the bandwidth required.
- The ESInet design shall support the ability to handle legacy 9-1-1 calls and ensure the capability of handling future call types.

#### AT&T Response:

Comply. The AT&T ESInet solution is the most redundant, reliable, and available full services ESInet solution offered in today's marketplace. It has been designed solely for the purpose of completing every 9-1-1 call 24x7x365. The AT&T ESInet can withstand the failure of individual components or the failure of Core processing sites and continue to successfully process 9-1-1 calls. Each OSP will be connected to dual LNGs. If any single LNG fails, the carrier will have a redundant LNG available. Once the call reaches the LNG, the LNG has six Core i3 processing sites available. Each Core i3 ESInet location is built with redundant hardware, software, and network connectivity. If a Core element or location becomes unavailable, the LNG will present the call to an alternate Core site. If a PSAP becomes unavailable or busy, the AT&T ESInet alternate routes the call to another destination, such as an administrative line, another PSAP, a PSTN telephone number, or to fast busy.

Any AT&T ESInet Core site can direct a call to any PSAP. Each PSAP has redundant IP links each of which is capable of handling 100% of PSAP call capability.

All traffic within the AT&T ESInet is prioritized based on importance. QoS is used to determine this priority. Additionally, MOS scores are utilized to determine which network path will provide the highest voice quality. If a network path degrades, the system will automatically route calls over another network path.

Bandwidth within the ESInet Core is built to support all of Alabama's existing 9-1-1 traffic as well as any increase in traffic over the next five years. The individual PSAP bandwidth has been proposed in two ways. First, 10 Mbps is proposed as requested by the State. In addition to the State's request, AT&T has provided a proposal to support the estimated 9-1-1 and Text IP traffic for the next five years. As the State will see, significant cost savings can be achieved by ordering bandwidth to support the current 9-1-1 needs. If the State decides to use the ESInet for other bandwidth-intensive applications, additional bandwidth can be ordered at that time. AT&T will work with the State for capacity planning and to mutually agree on ordering timeframes. This methodology allows to the State to have a cost effective solution in the near term and allows for growth with previously agreed upon SLAs for establishment of increased bandwidth.

The six-Core geographically diverse ESInet infrastructure is built to support all of AT&T's customers across the United States. Capacity and utilization are monitored for planning and management purposes, to establish performance through the use of traffic shaping and traffic policing.

### *2.3.1 ESINET NETWORK DIAGRAM(S)*

Respondents shall provide Network Diagrams to support their narrative that accurately displays how their proposed ESInet will be configured and deployed.

The Network Diagrams shall display information about the core ESInet design, the configuration, the interconnections and the access network links so that the diagram can be used as a basis for evaluation and understanding.

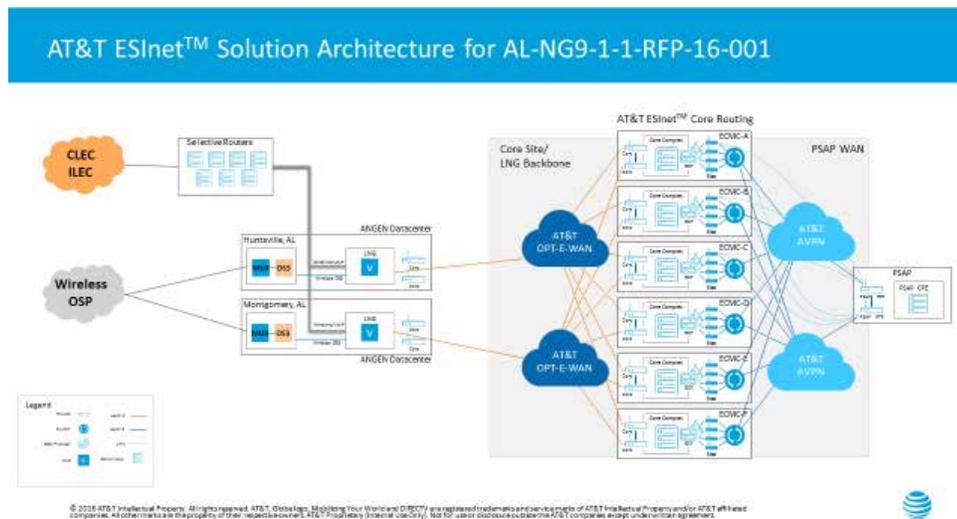
ESInet diagrams submitted shall depict, where appropriate, the following aspects of the proposed ESInet solution:

- Network map(s)/Diagram(s)
  - Logical topologies
  - Physical topologies
- Physical and logical path diversity
- Network ingress and egress points
- Connection types
- Capacities/estimated bandwidth
- Interconnection locations:
  - Node locations
  - Data Centers
  - Aggregation points (both carrier and local access)
- Additional technologies and interfaces as necessary

**AT&T Response:**

Comply.

The diagram below illustrates the proposed AT&T ESInet solution architecture for the State.



The diagram above depicts the AT&T ESInet solution design for the state of Alabama. It is AT&T's goal to provide a comprehensive solution, allowing the State to:

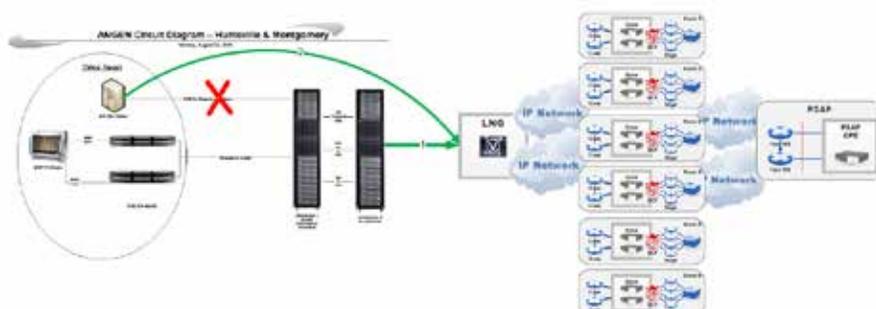
- 1.) Have all available features and functions of a redundant, highly available and reliable ESInet infrastructure.
- 2.) Utilize existing infrastructure to minimize impact on existing wireless customers, as well as reducing overall timelines for deployment.
- 3.) Evaluate potential elimination of legacy equipment and infrastructure to improve end-to-end efficiency, reliability and availability.
- 4.) Replace existing CAMA trunks to the PSAP with a reliable and redundant IP infrastructure using Legacy PSAP Gateways (LPG) where necessary.
- 5.) Allow for existing legacy selective router aggregation points to be re-used, while creating a new Legacy Network Gateway (LNG) solution allowing capable and new customers to terminate traffic to two common endpoints.

It is the recommendation of AT&T that the deployment occur in stages in order to create a full service solution, without immediately requiring the Originating Service Providers (OSP)s to

place new circuits orders. Depending on the State’s final disclosure: “Due to the critical nature of operational specifics regarding the capabilities and operation of ANGEN, additional details and information related to the current ANGEN design, configuration, capabilities, connections and operations will be shared with Respondents deemed qualified after the initial receipt of proposals to this RFP.” – AT&T presents the following staged plan for deployment.

Stage 1 – Using current features and functions of ANGEN infrastructure

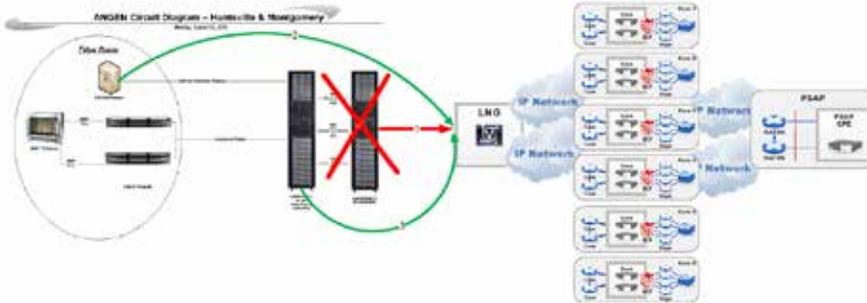
### Migration Stage 1



In order to accelerate deployment of the proposed AT&T ESInet solution, AT&T plans to reuse the existing infrastructure provided by the State. For stage 1, this includes new routes from the existing voice equipment to the new Legacy Network Gateway located within the same physical environment. This provisioning is direct and straight forward and allows for either a “flash cut” of the calls to the new environment, or a trunk-by-trunk cutover; AT&T is experienced in both of these options. Prior to migrating the wireless traffic to the new ESInet infrastructure, new connectivity will be established for ingress legacy selective router wireline and VoIP traffic. In order to keep the migration as simple as possible, AT&T recommends ordering new links – likely DS3s – for the Legacy Selective Routers to allow for a managed cutover directly to the new LNG environments. During the cutover, the PSAP CPE equipment is able to accept legacy traffic from the current solution, as well as new traffic from the AT&T ESInet solution. Once all legacy Selective router traffic is cutover, existing egress selective router circuits can be disconnected, leaving all connectivity in place to be managed and monitored by AT&T.

Stage 2 – Eliminating existing legacy infrastructure and streamlining ANGEN wireless aggregation

## Migration Stage 2



Stage 2 allows AT&T and the State of Alabama to streamline the solution by reducing or eliminating additional points of failure within the solution. Understanding that the equipment, provisioning, and support requirements of the existing ANGEN solution is not fully understood, AT&T plans to utilize the existing ADTRAN MUX located in the ANGEN facilities. Connectivity will be established between the existing MUX equipment and the new AT&T LNGs. AT&T will then work with the wireless carriers to provision new SS7 routes to the LNGs. This benefits the State in multiple ways. First, ordering new physical links into a system takes time and coordination. Allowing the wireless carriers to keep existing physical connectivity in place and ordering new SS7 data routes, reduces the overall timeline and minimizes the potential points of failure by eliminating unneeded equipment. In parallel, AT&T will work internally (with AT&T) and externally (with CenturyLink) to eliminate the S/R function in the existing selective router sites to create an aggregation pass-through. In essence, the current selective router locations will provide OSPs aggregation services. Using this staged approach allows OSPs to continue to deliver originating traffic to existing physical locations. In addition, legacy selective router providers may eliminate support expenses around the selective routing functionality.

### 2.4 ANGEN ESINET FEATURES AND FUNCTIONS

Respondents shall provide a narrative of their proposed ESInet with enough detail to ensure proper evaluation, using diagrams to provide an appropriate level of detail and common language that explains how their proposed ESInet solution is capable of supporting legacy 9-1-1 network options, NG9-1-1, current and evolving standards, and how it will accommodate the integration of other networks operated by other providers that comprise the ANGEN ecosystem.

The narrative will address each of the features or functions listed below (in no particular order):

1. Operations
2. Security (both physical and logical)
3. Availability
4. Monitoring

5. Alarming
6. Maintenance
7. Disaster Recovery
8. Service restoration
9. Outage mitigation
10. Core routing
11. Interface to Hosted solutions
12. Fault zone design methodology

Respondents shall provide a list and a description of all protocols or routing functions that are used in the ESInet infrastructure and ensure that they conform to NENA Detailed Functional and Interface Standards for the NENA i3 Solution NENA STA-010 standards. The proposed ESInet solution must be aligned with NENA 08-003 to ensure that the proposed network does not conflict with open standards specifications.

Respondents shall provide the system narrative immediately following this Section 2.4. Additional requirements and specific technical specifications are detailed in Sections 2.4.1 – 2.4.13

#### **AT&T Response:**

Comply.

#### **Operations**

The approach to plan, configure, network engineer, implement, test, document, train, and support the AT&T ESInet service follows solution lifecycle methodology and project management best practices as outlined by the Project Management Body of Knowledge (PMBOK) published by the Project Management Institute. The Technical Project Management team includes certified Project Management Professionals (PMPs) responsible for efficient and timely execution of each project. The team adheres to the globally recognized PMBOK methodology, employing tools and processes to initiate, plan, execute, monitor and control, and close each AT&T ESInet solution deployment project.

#### *Solution Lifecycle*

The Solution Lifecycle begins with solution definition and architecture activities. During these initial phases, the joint AT&T ESInet team and State of Alabama team members verify system application and implementation requirements, refine the solution architecture, and finalize the plan for solution migration and deployment. Following definition and architecture phases, the team orders, installs, configures, tests, and trains users on customer-facing solution components as part of solution integration and deployment effort. Following successful deployment, the maintenance phase begins. The primary goal of the lifecycle methodology is that the project aligns with overall customer expectations and is tailored to fit the needs of Alabama. The Project Plan phases are described below.

#### *Solution Definition*

The first phase in the Solution Lifecycle is the Solution Definition phase, which begins with the kickoff and alignment process and is critical to the overall success of the 9-1-1 initiative with the State of Alabama. During this process, key members of the joint project team unite to identify roles, responsibilities, critical success factors, and project challenges; elaborate on specific strategies and project options; confirm project scope; and finalize plans to expedite solution delivery plans and resources. The proposed solution is reviewed in order to align each primary stakeholder with a common vision and strategy for unified team design and planning.

The AT&T ESInet team conducts current systems, processes, and site studies to more clearly understand the current system and user environment, allowing the team to plan the most effective migration path to the new system.

In alignment with Project Management Institute best practices, project charter and scope documentation is developed during this phase as subsections to the overall project plan for the deployment. Initial drafts of the communication matrix, communication plan, risk matrix, and risk management plan are also created and become living documents within the project plan (updated per iterative project management methodologies).

#### Solution Architecture

During the Solution Architecture phase, the detailed solution design is finalized based on confirmed requirements. During this phase, the team analyzes the current systems, operations, and operational procedures; identifies the human factors needs; considers implementation options; and together with the State commits to the detailed solution design and implementation schedule. Project scope is finalized, along with risk management plans (including documented contingency planning).

Stakeholder participation to identify processes and standard operating impact is critical in this process to support a successful integration of the new system. It is vital that current procedures, connectivity, and routing policies are examined so that the appropriate practices are carried forward to the new system environment. Examples of important areas considered include load balancing, alternate, backup, and default routing rules.

Initial planning for connectivity from the existing legacy selective router and telephone service providers to the Points of Interconnection (POI) begins in the Solution Architecture phase. The recommended migration strategy uses the legacy selective router during the migration period to aggregate and handoff traffic by ESN to support flash cuts by PSAP and then re-home end offices and MSCs post-PSAP conversion. Key solution architecture planning activities include:

- Detailed solution design and schematics (onsite, site-to-site, firewalls, routers, etc.)
- IP specifications
- Telephone service provider connectivity specifications
- Physical requirements (e.g., equipment room design, floor loading)
- Call transfer requirements

- Training plan and schedule
- Refined project plan and timeline

### Solution Integration

During the Solution Integration phase, the components of the solution, including processes, applications, network components, and data flow, are engineered and readied for deployment. All network, regional, and premise components are delivered, and the equipment rooms and other facilities are readied.

Coordination with wireline, wireless, and VoIP telephone service providers is an essential part of this stage to plan for the 9-1-1 services management transition. Telephone service providers receive all necessary information to obtain connectivity to the AT&T ESInet systems and the service provider's connectivity to the POIs is engineered and ordered.

Working closely with the State and stakeholder groups, the project team designs customized provisioning plans (including incoming trunk route plans, bridge lists, and dialing plans). Additionally, the documentation and training developers customize the user and process documents and various training courseware, if needed, to meet the needs of Alabama.

Per project management best practices and PMBOK guidelines, the team employs ongoing internal tools and techniques to track issues, risks, and resolutions, as well as key project inputs and outputs, deliverables, and progress reports in an overall effort to appropriately monitor and control the progress of the deployment project.

### Solution Deployment

During the Solution Deployment phase, all network components and equipment connectivity is confirmed. Validation and acceptance tests are performed, metrics tracking and customer-facing reporting is initiated, and training is provided. After complete non-live call testing, the system begins supporting live 9-1-1 traffic.

In preparation for deployment and in partnership with the State's project team, the Program Manager finalizes the cutover plan, including procedures for notification concerning schedule specifics. In most cases, ALL services are converted prior to rehomeing any telephone service provider end offices. As end office 9-1-1 traffic is cut over, existing 9-1-1 service provider legacy CAMA trunks are replaced by AT&T ESInet Routing traffic.

Prior to the commencement of cutover, the project team members hold a cutover meeting with the State and the telephone service providers. The purpose of this meeting is to discuss the progress of activities and cutover readiness.

PSAP training is provided in accordance with the detailed training rollout plans. The system will then undergo a system acceptance test and quality walkthrough. Once complete, and in

agreement with the State, a go/no go determination is made and live-traffic cutover then commences. Once live traffic has moved to the system, the maintenance period begins.

#### Solution Maintenance

The Solution Maintenance phase begins once live traffic is transferred onto any part of the system. During this phase, the AT&T ESInet team provides ongoing tiered support services to monitor service level performance, manage help desk requests and trouble tickets, escalate support procedures, and support the State to reach the highest level of operational excellence. The solution support team is in place to receive, analyze, and rectify problems and information requests.

Upon formal project closure, lessons learned are documented and archived for use as critical reference points in future AT&T ESInet deployments. This allows each customer to benefit from efficiencies identified and gained through the execution of prior deployment projects. We emphasize continuous improvement as a key best practice for every project and product delivered and maintained by our organization.

#### **Security**

AT&T's cyber security policies, standards, and guidelines are compliant with industry best practices as defined by International Organization for Standardization and Control Objectives for Information and related Technology (COBIT). AT&T's next generation emergency services network is a secured and private IP managed network. All inbound and outbound traffic is through well-defined and controlled access points. Call processing and real-time data delivery are implemented through specialized subnets.

AT&T employs a defense-in-depth security strategy to protect sensitive information. Such controls include, but are not limited to stateful packet inspection firewalls (host and network based), IDS/IPS, ACLs, role-based access control, two-factor authentication, encryption, and AV (email and host). Furthermore, systems are protected with build standards, patch management, and regular vulnerability scans.

Sensitive data is housed in our data centers with logical and physical access controls. Development environments are separate from production and production data is not used in dev or SQA. Data transits untrusted networks (leaves AT&T custody) through applications or communication channels with encryption to safeguard confidentiality and integrity.

Finally, AT&T employs an Incident Handling process modeled on FEMA's Incident Command System. Notifications are built into this process.

AT&T ESInet infrastructure is built to withstand sophisticated attacks (including DDoS) by means of a defense in depth strategy. AT&T ESInet employs high availability systems with redundancy at geographical, carrier, circuit, power, application, and system levels. System/Application availability is safeguarded with clustering and load balancing techniques. Furthermore, the

AT&T ESInet security architecture employs defenses that include, but are not limited to, stateful packet inspection firewalls, IDS/IPS, multi-factor authentication, strong encryption, anti-virus/anti-malware, and vulnerability/patch management solutions. All inter-zone traffic is restricted to only the necessary protocols/destinations, both ingress and egress.

The network is capable of processing all traffic, but administratively denies protocols identified as a threat, or that otherwise fall outside of pre-defined parameters. This is partially managed via routing tables and/or Access Control Lists (ACLs). AT&T continually investigates and upgrades with new advances in protective technology with tools such as Intrusion Detection System (IDS).

The solution incorporates physical, network, and application security principals. Traffic between Core processing sites and distributed sites (e.g., ingress call traffic, PSAPs, management capabilities) is route and protocol secure. A combination of route paths, IP address recognition, limited protocols, VPNs, session border controllers, and firewalls secure the various communication elements of the proposed solution.

AT&T deploys firewalls and other network security devices and software to protect against inbound network threats on the servers that make up the proposed ESInet. AT&T also employs a regularly scheduled patching process to protect against the effects of malware. Computing devices are subjected to thorough security scans so that there are no malware elements present. Access to processing elements is restricted to authorized personnel. Network connections from solution components are limited to those connections needed for operation and maintenance. Physical and network access to production components is restricted to those that have an operational responsibility, and all activity is audited and monitored.

All development environments are fully separate from production environments. All hardware and software elements that are deployed in a production environment go through stringent release management processes that incorporate thorough testing and scans.

#### **Availability**

The AT&T ESInet is designed to achieve highly available service architecture through an active-active processing methodology, geographic diverse and distributed components, highly available component architecture, and redundant IP transport. The AT&T ESInet achieves 99.999% service availability for call processing and has no single point of failure that will disrupt the ability to provide on-going call processing. All functions necessary for call processing are deployed in a highly available configuration and duplicated across Core sites and LNGs. Transactions or call traffic divert to available components on failure or degradation of Service of a given functional component or a loss of a physical site. IP transport paths for critical service components are redundant and designed for multipath IP packet delivery so the failure of a given IP transport mechanism will not affect overall service availability. The AT&T ESInet components are designed and configured for continuous operation as referenced in NENA i3 Standard.08-003 Version 1.0.

Commented [e2]: AT&T to edit and address SLAs

Commented [TMA3R2]: Availability SLA definition provided later in section 2.

## Monitoring

The AT&T ESInet Network Operations Center (NOC) is staffed 24 hours a day, seven days a week, 365 days a year to actively monitor and manage the AT&T ESInet associated services and connectivity to the Alabama network. When a potential or actual Customer-affecting issue is defined and determined to be an incident, the Incident Administration team is engaged by the NOC. The team uses established processes that are ISO 9001:2008-compliant for immediate escalation, notification, resolution, and reporting.

**Commented [e4]:** AT&T to replace with customer facing language.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. Traditional network management is complemented by active application monitoring and alerting. The AT&T ESInet application elements also report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

All network elements are monitored with SNMP at the NOC. This includes LNGs, ESRPs, ECRFs, BCFs, and PSAP site equipment.

The NOC monitors and tracks net flow statistics and performs packet level capture and forensics at the AT&T ESInet Core sites. There are currently two varieties of monitoring systems in use at the NOC. One provides a "single pane of glass" for network and system status. This provides SNMP trap and syslog receiver capabilities. These systems also provide ICMP and SNMP trending and threshold alarming. The second type of system provides packet capture, display, and troubleshooting capabilities. The second type of system provides packet capture, display and troubleshooting capabilities.

## Alarming

The AT&T ESInet application elements report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. The AT&T ESInet application elements also report internal subsystem and adjacent subsystem failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution. The production servers have monitoring agents installed on them that are used for hardware, operating system, and application monitoring/alerting.

The NOC processes alarms and categorizes them as normal, warning, minor, major, and critical alarms. The definitions are defined by Engineering and Operations appropriate to the

monitored device or application. Responses to alarms in the form of alerts are enacted based on the severity categorization of the alarm and the associated support model.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened.

We are capable of alarm suppression by time, quantity and a combination for reducing alarm notifications. For example we can say “no more of a certain alarm for the next 30 minutes” or we can say “send me duplicate alarms every 5 minutes.

Notifications are delivered in multiple ways: SMS, SMTP, Syslog collection, and to the NOC operator consoles.

- A monitored system sends a trap upon the observation of a predefined event in a monitored service
- Agents run local to the monitored service and do logfile analysis, process analysis, and performance analysis
- Polling occurs to monitor for availability of service
- The polling and local agent analysis intervals vary by device, but typically range from 5 seconds to 5 minutes as defined by the supporting team of that device
- System log retention of 180 days can be configured. The system log data can be filtered and sorted.

Remote monitoring of network and computer performance is conducted to provide statistical data on the number of alarms received and reported based on severity.

### Maintenance

AT&T monitors and manages the AT&T ESInet mission critical solution 24x7x365. Trained personnel proactively monitor components of the solution and review, make recommendations, and perform actions so that the system functions at optimal efficiency.

Maintenance of the AT&T ESInet is done with no scheduled downtime. A notification of the upcoming event will be sent to Alabama as applicable. We fully staff and manage planned events with a trained event management team, facilitating the change implementation, monitoring, and communication through the length of the event. We adhere to stringent, internal event plan processes and procedures to include step by step execution procedures with the associated time frames, back-out procedures, and baseline and validation testing. We include the required back-out time within the scheduled maintenance time frame.

### Disaster Recovery

Commented [e5]: AT&T to edit

Commented [TMA6R5]: Language looks acceptable. Do other members of the AT&T team concur?

The AT&T ESInet consists of real-time systems and is deployed in a fault tolerant/fail safe configuration. In the event of total destruction or catastrophic failure of a Core site or LNG, other Core site(s) or LNG(s) provide necessary processing until restoration is achieved.

We have established defined and reasonable business continuity and restoration plans including complex disaster and evacuation contingencies. Power infrastructure and environmental systems at Core sites and LNGs are deployed so that a commercial power failure does not result in an interruption of service. We manage disaster recovery plans based on industry best practices.

The disaster recovery plan includes the following:

- A backup strategy for operating system, applications, and databases.
- Recovery procedures include the restoration of the operating system, application, database, user files, and third party tools. This takes into account any special supplies and considerations specific to the locations involved in the recovery.
- An inventory of hardware and software required for recovery.
- A schedule of application recovery timeframes including any external dependencies and their anticipated timeframes.
- Procedures to validate system, application, and data integrity to verify restoration is complete.

Commented [TMA7]: Bullets need formatting.

### Service Restoration

The AT&T ESInet solutions' essential processes, systems, and networks supporting 9-1-1 traffic are designed and deployed to accommodate possible disruptions and disasters to any given element or data center and support 24x7x365 continuous operation. In the event of unplanned system or network outages, this diversity allows AT&T ESInet systems to continue operating while Incident Management processes are engaged to identify and resolve issues.

In case of a service interruption and/or outage, we have instituted Incident Management processes and procedures for dealing with various severity levels during the course of an event. The incident response tools are modeled directly from the Federal Emergency Management Agency (FEMA) Emergency Management Institute. Our service restoration processes include resolution, documentation of any incident, communications, and post- event analysis.

Commented [e8]: AT&T to review and adjust as appropriate for your response.

Commented [TMA9R8]: Removed reference to ICS and kept response more general.

### Outage Mitigation

In the event of an outage AT&T applies immediate and sustained effort, 7x24, until a final resolution is in place. AT&T uses all reasonable efforts to provide a temporary workaround within an agreed upon time frame of the issue being detected. If a temporary workaround solution is provided, AT&T provides an action plan to be mutually agreed upon for the final resolution. AT&T continues resolution activity until full service is restored.

### Core Routing

AT&T uses the legacy network gateways (LNG) to connect to legacy, non-traditional networks and offers Core-managed network services to support NG 9-1-1 call routing and location data management. The AT&T ESInet uses redundant and robust Emergency Services Routing Proxies (ESRP) and Policy Routing Function (PRF) that enable for flexible routing algorithms that can be dictated by the local 9-1-1 authority.

The AT&T ESInet solution is deployed over IP-based Layer 3 VPN services that are used to provide connectivity between endpoint AT&T ESInet sites (LNGs and PSAPs) and AT&T Core sites. This provides a scalable point-to-multipoint WAN configuration and allows relatively simple provisioning for endpoint sites without the need for repeated long-haul circuit aggregation. Any endpoint attached to a given IP VPN instance can be configured to reach any other endpoint due to the use of dynamic routing protocols that allow precise policy control over routing updates.

Virtual Private LAN Services (VPLS) is a class of VPN that supports the connection of multiple sites in a single bridged domain over a managed IP/MPLS network. VPLS presents an Ethernet interface, simplifying the LAN/WAN boundary between Service Providers and customers, and enabling rapid and flexible service provisioning, because the service bandwidth is not tied to the physical interface. All services in a VPLS appear to be on the same LAN, regardless of location. The major benefit it provides is the capability of the End Point Network Administrator to implement and control the overlaying IP Address schema which lessens the probability of IP Address conflicts.

Typically, multiple IP L3 VPN instances are provisioned. Individual endpoint sites use at least two IP instances for redundant connectivity to the six Core sites and other central sites attach to all IP carriers that serve endpoint sites for that particular AT&T ESInet product.

**Commented [TMA10]:** Need West to clean up the Visio document and remove the "x" connection points on the graphics objects.

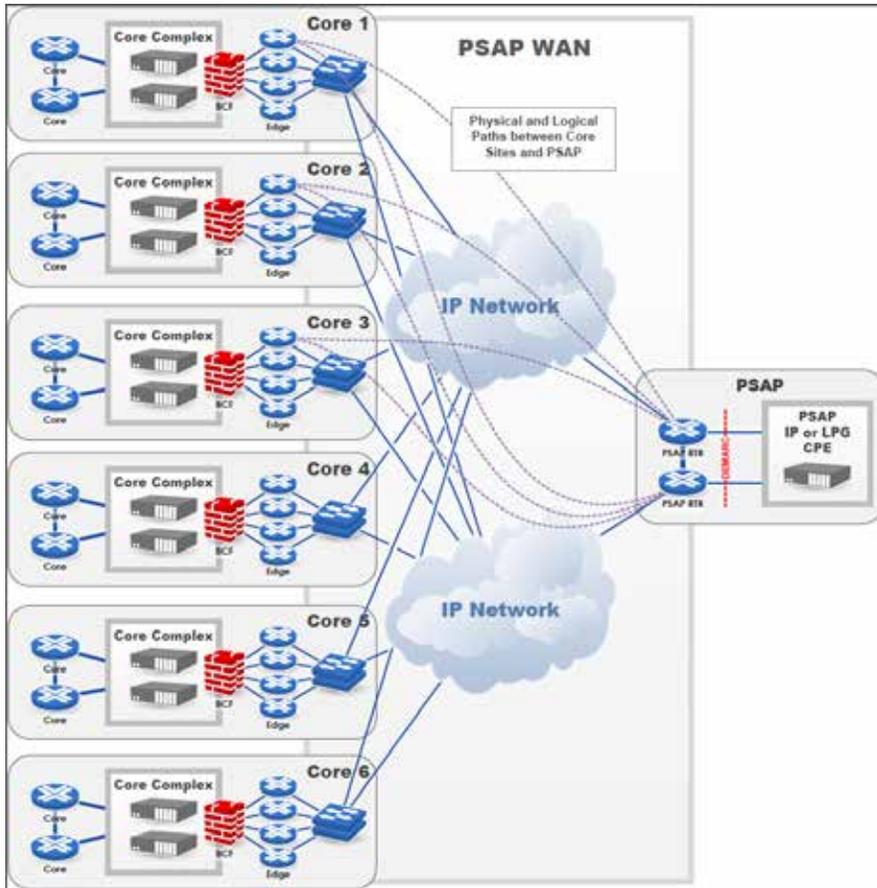


Figure 7: AT&T ESInet 6-Core Architecture

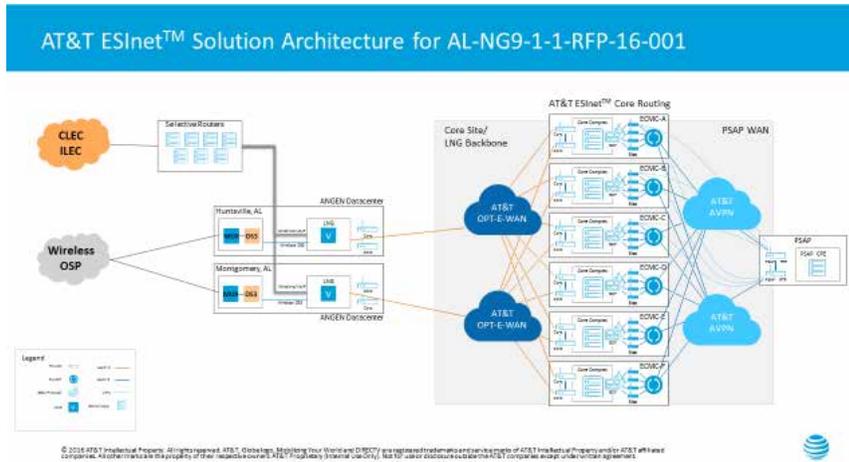


Figure 8: Core Site Architecture

### Interface to Hosted Solutions

The AT&T ESInet supports all standard protocols to hosted solutions. Both CAMA and IP PSAPs are supported. IP protocols exist for both legacy selective routing compatibility models and NENA i3 geographical routing models.

AT&T ESInet is compatible with the NENA -02-010 Specification and provides LPGs when required to convert from IP to PSAP CAMA trunks.

For i3 PSAPs, the AT&T ESInet is compatible with IP CPE that complies with NENA i3 08-003 Version 1.0 Detailed Functional and Interface Specification for the NENA i3 Solution – Stage 3 as follows:

- ESRP-Terminating ESRP Interface
- ECRF-LoST Interface
- LDB/LIS-HELD Interface
- CIDB-Additional Data Interface
- LVF-LoST Interface

### Fault Zone Design Methodology

AT&T ESInet has a fault zone design based upon a defense in depth methodology which defends against any particular attack using several varying methods. It is a layering tactic, conceived by the National Security Agency (NSA) as a comprehensive approach to information and electronic security. Defense in depth is the coordinated use of multiple security

countermeasures to protect the confidentiality, integrity, and availability of the information assets. The strategy is based on the military principle that it is more difficult for an enemy to defeat a complex and multi-layered defense system than to penetrate a single barrier. Defense in depth minimizes the probability that the efforts of malicious hackers, viruses, and malware will succeed. This well-designed strategy helps security personnel, network engineers, and system administrators to identify entities that attempt to compromise AT&T ESInet computers, servers, and networks. If a malicious attempt is launched against system resources, this approach minimizes adverse impact and provides personnel with the time to deploy new or updated countermeasures.

The placement of protection mechanisms, procedures, and policies increases the dependability of AT&T ESInet systems where multiple layers of defense prevent direct attacks. Components of defense in depth include firewalls, intrusion prevention and detection, and data / network segmentation. Any combination of these measures is deployed in accordance with the business continuity determination, risk assessment, and customer requirements.

#### **Protocols and Routing Functions Used in the AT&T ESInet Solution**

The following protocols and routing functions are used in the AT&T ESInet solution. They conform to the NENA Detailed Functional and Interface Standards for the NENA i3 Solution NENA STA-010 standards.

Data Retrieval Protocols and Functions include

- PIDF-LO – Presence Information Data Format – Location Object (RFC 5139)
- LoST – Location to Service Translation (RFC 5222)
- HELD – HTTP Enabled Location Delivery (RFC 5985 and RFC 6155)
- Additional Data Protocol

Routing and Network Functions include

- ESRP / PRF
- T-ESRP
- BCF
- LNG/LSRG with LIF, NIF, PIF
- ECRF with Forest Guide-like support in lieu of a National Forest Guide
- LIS Interface
- ADR Interface

Additionally, the following Network Signaling Protocols are supported:

- CAMA

- PRI
- SS7
- SIP

#### 2.4.1 VOLUME AND PERFORMANCE

The ESInet shall be designed to handle, at a minimum, **4,000,000 calls annually**, and an estimated 1,000,000 emergency text messages (inbound and outbound) initially.

The wireless traffic high month was 6,617 hours of talk-time.

The ESInet shall be capable of increasing capacity by 10 percent annually over the initial term of the contract.

#### AT&T Response:

Comply. The proposed system has been designed to accommodate the metrics as enumerated in this section of the RFP.

Not only is the AT&T ESInet capable of handling expected call volume in Alabama, but it is capable of handling more than twice the nationwide call volume for 9-1-1 (NENA estimated at 240M calls annually). Each AT&T ESInet Core can exceed a call arrival rate of 30 calls per second and handle thousands of simultaneous calls. The AT&T ESInet Core ESRP and ECRF configurations distribute transactions across a set of processors in an active/active configuration and any Core can handle and process any given call. Maintenance, logging and alarm management functions are all incorporated into the capacity management model.

IP network transport used by the AT&T ESInet will initially be sized to comply with specified network bandwidth requirements. The AT&T ESInet IP network is monitored for capacity trends that indicate the need for proactive growth of the ESInet. As the needs of the Alabama ESInet grow, local PSAP connectivity bandwidth will be scaled up or down by a change order process or through procedures as defined in the SLA and/or contract.

#### 2.4.2 NETWORK AVAILABILITY & RELIABILITY

The proposed system, including all subsystems, shall be available a minimum of 99.999% of the time when measured on a 24x7x365 basis during a calendar year. Respondents must provide a description of how the availability and reliability will be measured and include a Service Level Agreement (SLA) that is consistent with the recommendations of ESIND and NENA08-003.

Respondents shall explain how the system will achieve this level of availability.

#### AT&T Response:

Comply.

**Commented [e11]:** This is a standard West response – AT&T to confirm/update and validate response

**Commented [TMA12R11]:** See recommended updates.

**Commented [e13]:** AT&T to respond.

**Commented [TMA14R13]:** Please see suggested response.

AT&T ESInet achieves 99.999% service availability 24x7x365 for call processing and has no single point of failure that will disrupt the ability to provide on-going call processing. All functions necessary for call processing are deployed in a highly available configuration and duplicated across Core sites and LNGs. Transactions or call traffic divert to available components on failure or degradation of Service of a given functional component or a loss of a physical site. IP transport paths for critical service components are redundant and designed for multipath IP packet delivery so the failure of a given IP transport mechanism does not affect overall service availability. The AT&T ESInet components are designed and configured for continuous operation. AT&T ESInet availability is calculated from the time the outage begins that impacts call processing ability, until such time that the AT&T ESInet call processing ability is restored. This includes all AT&T ESInet downtime for the end to end service.

The AT&T ESInet Solution utilizes Link Aggregation as a method of combining multiple physical network links into a single logical link/group. When one or more interfaces in a group fail, the software automatically detects the failure and rebalances the traffic across the remaining links without a loss of data. Once the failed link has been restored, the system automatically reconfigures to use all active network links. This load balancing is transparent to the end user who experiences no downtime.

All network routing infrastructure is designed and deployed in an N+1 model. N+1 redundancy provides a minimum of one additional unit, module, path, or system in addition to the minimum required to satisfy the base connectivity, ensuring that a failure of any single component at a given diverse site will not render the location inoperative. All network connectivity is established via dynamic routing protocols. The use of dynamic routing protocols allows the routers to automatically discover each connected network and adapt to changes in the [Internet](#) work topology.

AT&T's Availability SLA measures the ESInet availability requirement of 99.999% for call processing. ESInet downtime is any failure of all instances of an ESInet critical function or infrastructure element. AT&T ESInet downtime will not exceed 5.26 minutes per year.

#### 2.4.3 INTERCONNECTION OF OTHER NETWORKS AND SYSTEMS

The proposed solution must be designed to allow for interconnection to other ESInet implementations, PSAP systems (CAD, logging recorders, etc.), criminal justice networks, other 9-1-1 networks or other secure public safety technologies as may be designated by the Board. The proposed solution must ensure "open standards" and describe provisions to collaborate with potential interconnected solutions.

Respondents shall describe the ability for their ESInet solution to interconnect and interoperate with other ESInet implementations, PSAP systems (CAD, logging recorders, etc.), criminal justice networks, other 9-1-1 networks or other secure public safety technologies as may be designated by the Board.

Commented [e15]: AT&T to address this as it is outside the scope of the ESInet.

Commented [TMA16R15]: Inserted RFP response from the Alabama RFP.

Any IP network approved by the Board to connect to the ESInet shall be required to comply with appropriate ESInet, NENA, and National and Open Standards described in this proposal or as may be current at the time of proposed interconnection.

The ESInet shall be configured in a manner that Board approved edge site Local Area Networks (LANs), such as computer aided dispatch (CAD) systems and/or other Public Safety systems may be connected to utilize the functionality created by the ESInet.

Respondents shall be accountable for ensuring that additional networks meet the minimum qualifications for interconnection presented in this specification and that security of ANGEN is maintained through collaboration with each potential network provider.

**AT&T Response:**

Comply.

AT&T's ESInet solution is a complete, end-to-end hosted NG 9-1-1 solution that provides an ESInet that is fully interoperable with legacy networks. In addition, a staged approach to a network-based service implementation minimizes the impact on existing 9-1-1 operations. When you are ready for i3, the AT&T ESInet solution is here for you. We will customize a transition plan to NENA i3 compliance that will best fit the needs of your PSAPs. We will also ensure that the PSAPs will be able to interoperate with both legacy and NextGen PSAPs that are outside of your jurisdiction. This mitigates the challenges faced when introducing change into the system and increases the value of 9-1-1 through improved flexibility that can be both tailored at the onset of a project, as well as provide the foundation for future NextGen applications that Alabama may want to add at the appropriate time.

The AT&T ESInet network provides the key elements of security, reliability, and availability that extend to all layers of the system, providing the foundation for deploying 9-1-1 voice and data services. AT&T ESInet, ESRP, and LNG are part of a fully diverse and redundant infrastructure for managing connectivity from telecommunications service providers as well as to each of the PSAPs within the region. This also allows for complete interoperability between the PSAPs in the region, as well as any neighboring PSAPs that may or may not be part of an ESInet.

The AT&T ESInet solution offers the following features:

- Provides a secure managed IP network and application-based framework for delivering highly reliable, robust, secure, and efficient emergency services
- Replaces decades-old selective routers and point-to-point circuitry with modern IP technology with LNG, ESRP, and LPG services to legacy PSAPs
- Supplies a single-vendor solution for simplified vendor management
- Provides the capability to connect via SIP to CPE for improved call set-up times
- Provides the capability to transfer calls natively to neighboring PSAPs, regardless of LATA or telephone service provider boundaries

- Utilizes a design based on NENA i3 standards; supports the transition from legacy to NG 9-1-1
- Allows quick and effective development and deployment of new applications with minimal or no impact on users or their operational activities
- Connects to both legacy emergency networks and non-traditional networks such as VoIP
- Establishes the foundation to support future public emergency service-requesting devices using various emerging multi-media protocols
- Provides access for additional data sources
- Delivers current and future emergency services to a variety of users—including PSAPs, dispatchers, and other public safety agencies—without compromising the integrity and security of the emergency services infrastructure

### Core Network Infrastructure

The AT&T ESInet uses the legacy network gateways (LNG) to connect to legacy, non-traditional networks and offers core managed network services to support NG9-1-1 call routing and location data management. The AT&T ESInet uses redundant and robust Emergency Services Routing Proxies (ESRP) and Policy Routing Functions (PRF) that enable flexible routing algorithms that can be dictated by the local 9-1-1 authority.

AT&T ESInet is deployed over IP-based Layer 3 VPN services that are used to provide connectivity between endpoint AT&T ESInet sites (LNGs and PSAPs) and Core sites. This provides a scalable point-to-multipoint WAN configuration and allows relatively simple provisioning for endpoint sites without the need for repeated long-haul circuit aggregation. Any endpoint attached to a given IP VPN instance can be configured to reach any other endpoint due to the use of dynamic routing protocols that allow precise policy control over routing updates.

Typically, multiple IP L3 VPN instances are provisioned. Individual endpoint sites use at least two IP instances for redundant connectivity to the Core sites and other central sites attached to all IP carriers that serve endpoint sites for that particular AT&T ESInet product:

The AT&T ESInet solution is capable of bandwidth growth at each network element, at existing end sites, and at future end sites without sacrificing reliability of the solution. The solution is capable of interconnecting to other national- and/or state-level ESInets via open standards-based interfaces.

#### 2.4.4 QUALITY OF SERVICE FEATURES

Any proposed ESInet shall have quality of service (QoS) features suitable for the real-time transport of VoIP traffic requesting emergency services (as defined in NENA 08-003).

Respondents shall describe their method of managing the QoS features defined below and offer an explanation of how their proposed ESInet will perform to these capabilities

The following ESInet performance requirements are taken directly from NENA 08-506 ESIND:

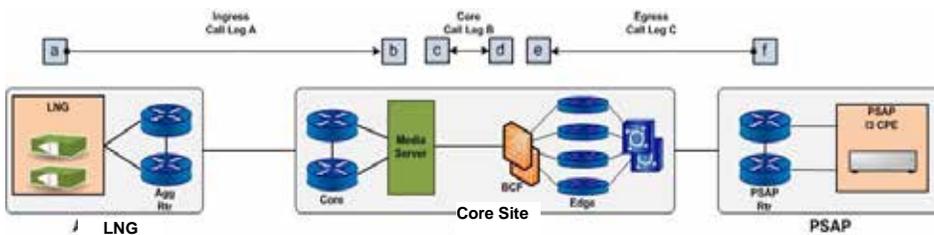
1. **Packet Latency (50 ms)**
  - o Packet Latency shall average a round trip time of fifty (50) milliseconds.
2. **Packet Loss (5%)**
  - o Respondents shall design the ESInet without oversubscription and keep the packet loss budget under 5%.
3. **Jitter (20 ms)**
  - o Jitter shall not exceed twenty (20) milliseconds.

Respondents shall provide an explanation of the proposed solutions QoS capability that minimizes congestion, mitigates errors and ensures the delivery of Real-Time Transport Protocol (RTP) packets across the ESInet.

**AT&T Response:**

Comply. The proposed ESInet will be a Quality of Service (QoS)-managed network providing the capability to prioritize any type of IP traffic (voice, data, and multi-media). The solution will provide QoS and VLANs between data centers and PSAPs to prioritize and protect the data/traffic.

Quality of Service in the AT&T ESInet network is performed through packet marking with Differentiated Services Code Point (DSCP) on ingress to the switch ports attaching voice equipment to routers at remote and Core sites. In some cases, the voice equipment manages its own marking, and the router/switch honors these QoS settings. In others, the router/switch will override the DSCP marking with a more appropriate setting. The audio stream Real Time Protocol (RTP) is marked with "Expedited Forwarding", the highest class of service available, so that it is treated like real-time media (e.g., voice). This is appropriate for real-time media such as voice and is typically mapped to a priority queue. Signaling packets (SIP or Media Gateway Control Protocol (MGCP)) are placed in another queue, which will typically have a small but firmly-reserved portion of bandwidth.



IP providers typically offer 3-4 different QoS queues across their IP Cores. Inside AT&T ESInet remote and Core sites; as many as six or seven different queues may be in use, so some

consolidation is required. Any DSCP markings are preserved for transmission in a tunnel – the marking is transferred to the new GRE/IPSec packet after encryption is performed, so that QoS requirements are preserved even though traffic is encrypted across the network.

### **Jitter, Latency and Packet Loss**

#### Packet Loss Guarantee

The AT&T ESInet Packet Latency will average a round trip time of fifty (50) milliseconds or less between the data centers and the PSAP end points.

#### Jitter

The AT&T ESInet Jitter Guarantee will be a monthly network-wide average one-way jitter guarantee of ten (10) milliseconds or less between the data centers and the PSAP end points.

#### Latency

The AT&T ESInet Latency Guarantee will be a monthly network-wide average roundtrip transmission of fifty (50) milliseconds or less between the data centers and the PSAP end points.

#### *2.4.5 TRAFFIC PRIORITIZATION NARRATIVE*

Respondents shall describe how their proposed solution manages the prioritization of traffic across the ESInet, how QoS is implemented and describe the interoperability of the IP routing mechanisms.

#### **AT&T Response:**

Comply. The AT&T ESInet is a Quality of Service (QoS)-managed network providing the capability to prioritize any type of IP traffic (voice, data, and multi-media). The solution provides QoS and VLANs between data centers and PSAPs to prioritize and protect the data/traffic.

QoS is performed primarily through packet marking with Differentiated Services Code Point (DSCP) for scalable management of network traffic. In some cases, the data center voice equipment manages its own marking, and the router/switch honors these QoS settings. In others, the router/switch will override the DSCP marking with a more appropriate setting. Typically, the audio stream, Real Time Transport Protocol (RTP), is marked with "Expedited Forwarding," the highest class of service available. This is appropriate for real-time media such as voice and is mapped to a priority queue. Signaling packets (Session Initiation Protocol or Media Gateway Control Protocol) are placed in another queue, which will typically have a small but firmly-reserved portion of bandwidth. This prioritization of packets ensures that voice packets get the highest priority in the network.

#### 2.4.6 SCALABILITY

The Board seeks a solution that will accommodate bandwidth changes, additional sites to be added or sites removed, and to interconnect to other regional or statewide ESInets without downtime or substantial increase in operating costs.

Respondents shall describe how their proposed ESInet design permits scalability.

##### AT&T Response:

Comply. The AT&T ESInet solution is extremely flexible, configurable, scalable, and survivable. System expansion can be achieved automatically thru load balancing across the core routing resources taking full advantage of the additional capacity included with our national solution infrastructure. AT&T ESInet is offered as a service with fixed recurring costs that include replacement or upgrades of existing components at no additional cost to the State.

The core routing and intelligence of the ESInet provides the State with immediate scalability in call routing and data delivery. The core network and NG9-1-1 services are designed to support very large volumes with geographic diversity of both network and services. The end result is a network that is public safety grade in terms of capacity, reliability, scalability, and redundancy.

AT&T ESInet achieves highly available service architecture through an active-active processing methodology, geographic diverse and distributed components, high available component architecture and redundant IP transport. 99.999% service availability is achieved through an overall design with no single point of failure that will disrupt the ability to provide on-going service. All functions necessary for call processing are deployed in a highly available configuration and duplicated across Core sites and LNG sites. Transactions or call traffic divert to available components upon failure of a given functional component or a loss of a physical site. IP transport paths for critical service components are redundant and designed for multipath IP packet delivery so the failure of a given IP transport mechanism will not affect overall service availability. The Core components are designed and configured for continuous operation.

Each architectural area consists of both physical processing elements and network. Many of the components, based on a high availability architecture, are established above capacity requirements and do not require incremental supplementation as transactional volumes increase. Transactional increases occur through the addition of PSAPs and LNGs with Ingress 9-1-1 traffic. Other elements are supplemented on a deployment basis and are established based on pre-determined ingress or egress call volume limits.

Many of the elements of the Core sites are designed and deployed from infrastructure establishment to support the end-state capacity requirement. This is done because, in some cases, the fundamental designs approach for high reliability results in a high transaction processing capacity. Therefore, other than performance and capacity monitoring, there is no capacity supplementation required as the operating environment supports increasing transactions.

Commented [s17]: AT&T input needed on operating costs increases.

Commented [TMA18R17]: Ron & JCR, please see my proposed response.

Incremental ingress and egress facilities are added for each customer. Ingress calls are physically terminated across distributed trunk ports on scale-able and geographically distributed media gateways. Ingress OSP traffic is terminated at either a new or existing LNG. Each deployed area is provided at least two LNGs for OSP interconnection. The LNG converts from TDM to IP and initiates transport of IP packets to a Core site.

PSAP call completion is throttled by PSAP call capacity (legacy represented by PSAP CAMA trunks). Calls not completed to a PSAP are handled by PSAP defined routing policy, which is one of the following: directed to an alternate PSAP, directed to a PSTN TN, provided tone treatment or, less commonly, handed-off to an adjacent selective router. Egress call traffic is nominally delivered to a PSAP. A PSAP is either an IP PSAP or a CAMA PSAP. In each case, an IP router is placed at the PSAP POI. For CAMA PSAPs, Legacy PSAP Gateways (LPGs) are present and there are always at least two for a given PSAP.

The AT&T ESInet architecture is designed to achieve overall service availability exceeding 99.999%. Ingress call origination is spread across physical TDM components representing a distributed structure for cumulative call capacity. Cooperative OSP distribution of call origination across this infrastructure mitigates the physical nature of TDM components and cumulatively diminishes overall service disruption. The ingress call traffic is dynamically distributed to Core sites for processing. Core sites are highly available complexes of functions and components. The design nature to achieve high reliability results in an "over-build" from a capacity requirement view.

#### *2.4.7 REDUNDANCY AND SURVIVABILITY*

The ESInet shall be configured to survive natural or man-made disasters at every core site (Central Office, Point of Presence, Data Center or other central switching location) and shall provide a description of survivable capabilities at all edge sites including PSAPs

Additional requirements for the reliability design of the ESInet shall be guided by the FCC Report and Order **FCC 13-158 – Improving 911 Reliability and Reliability and Continuity of Communications Networks, Including Broadband Technologies.**

Where available, the ESInet network core solution and redundantly connected sites shall include physically diverse routes and physically diverse building entrances.

Respondents shall provide a detailed description of all single points of failure or specific locations that lack diversity and/or redundancy present within their proposed solution. This includes locations within the proposed ESInet where redundant components, network resources and physical connections **DO NOT** exist.

Respondents shall explain in detail the redundancy and survivability measures proposed for the ESInet and the core network components.

#### **AT&T Response:**

Comply. The solution offered to the state of Alabama utilizes geographically diverse engineering and redundancy which provides the ability to survive disaster scenarios. Power infrastructure and environmental systems are deployed so that a commercial power failure does not result in an interruption of service.

The core routing and intelligence of the ESInet provide the State with immediate scalability in call routing and data delivery. The Core network and NG9-1-1 services are designed to support very large volumes with geographic diversity of the 6 Core processing centers. The end result is an infrastructure that is public safety grade in terms of capacity, reliability, scalability, and redundancy.

AT&T ESInet network protocols used for transport encapsulation and routing are all RFC-compliant; these include point-to-point GRE IPsec tunnels from the ingress LNG locations to the Core sites and from the Core sites to the PSAP locations. For IP transport eBGP is used between the AT&T ESInet-managed edge routers across a DMVPN mesh (IPsec/GRE/NHRP) overlaying the basic L3VPN service.

The AT&T ESInet network architecture is capable of supporting uptime requirements of 99.999%. Multiple IP transport paths are established between the Core sites and the CPE locations. The AT&T ESInet quickly detects impairment (packet loss, jitter, etc.) and soft failures (that is, loss of transit across an IP L3VPN instance with no detectable circuit loss or BGP route withdrawals at the edge) on one IP instance and moves traffic to the other unimpaired transport without interrupting existing data flows or voice RTP streams.

#### **Interface/Network Redundancy**

The AT&T ESInet Solution utilizes Link Aggregation as a method of combining multiple physical network links into a single logical link. For example, two Network Interface Cards (NICs) are combined into one virtual/logical interface. The network and software running across it recognize these two NICs as one virtual connection. If one goes down, the other can still handle the traffic. When one or more interfaces in a group fail, the software automatically detects the failure and rebalances the traffic across the remaining links without a loss of data. Once the failed link has been restored, the system automatically reconfigures to use all active network links. This load balancing is transparent to the end user who experiences no downtime. A fault tolerant NIC group eliminates the single points of failure. The fault-tolerant interface group provides dynamic failover access across multiple redundant connections to the network. When a bad cable, a lost link, or a failed adapter causes a failure on the primary NIC link, the intermediate driver software will switch to the secondary adapter.

#### **Network Switching**

The solution leverages a full suite of features within the switched environment to provide proper failover. These technologies include: Spanning Tree Protocol (STP); VRRP, Dot1Q

trunking; LACP (IEEE 802.3ad). The routers/switches that connect all of the AT&T ESInet infrastructure are interconnected with two physical connections (bonded using LACP) carrying actual switch trunking messages, as well as STP and VLAN Trunk Protocol (VTP). Another dual-port bonded link is utilized to carry routing traffic only. Each physical link resides on different blades within each router/switch ensuring optimal redundancy. The bonding of these two ports provides a level of separation between the two switches based upon the type of traffic (Layer 2 vs. Layer 3). This utilization of bonding provides redundancy and reliability should any single Ethernet blade or individual port fail.

### **Network Routing/Resiliency**

All network routing infrastructure is designed and deployed in an N+1 model. N+1 redundancy provides a minimum of one additional unit, module, path, or system in addition to the minimum required to satisfy the base connectivity, ensuring that a failure of any single component at a given diverse site will not render the location inoperative. All network connectivity is established via dynamic routing protocols. The use of dynamic routing protocols allows the routers to automatically discover each connected network and adapt to changes in the Internet work topology.

Additionally, Information Security monitors all aspects of the network for threats from a variety of sources. This capability assists in troubleshooting and anomaly resolution as well as providing assurance of reliable performance.

### **Backup Power**

Each of the Core sites is equipped with multiple battery backups, as well as generators permanently located at each site. Each facility is required to have priority fuel contracts in place, guaranteeing constant fuel supplies during extended outages. Regular maintenance and full load testing is required at each site to provide reliability.

### **Solution Security including Anti-Virus and Security Software**

All AT&T ESInet network elements are monitored with SNMP at the NOC. This includes LNGs, ESRPs, ECRFs, BCFs, and PSAP site equipment. We monitor and track net flow statistics and perform packet level capture and forensics at the AT&T ESInet Core sites. We operate multiple network and systems monitoring applications across physical locations. There are currently two varieties of monitoring systems in use. System monitoring provides a "single pane of glass" for network and system status by utilizing SNMP trap and Syslog receiver capabilities and ICMP and SNMP trending and threshold alarming. The second type of system provides packet capture, display and troubleshooting capabilities.

IP SIP calls are received at SBCs located within the ESInet Core locations. Originating Service Providers (OSPs) utilizing IP are encouraged to establish connectivity to at least two Core ESInet locations. SIP monitoring via SIP "Options" messages exists between the Core site call control application and each ingress (OSP) and PSAP endpoint. Continuity Tests (COT) and loopback and

tone check testing is performed between the AT&T ESInet LNGs and OSP switching equipment before a circuit is established to detect failure of DSO channels.

IPSLA testing is established between the routers at the LNG and the Core and between the Core and the PSAP. This includes transport layer testing and monitoring with VPN GRE tunnels and eBGP route viability. PESQ is measured at the AT&T ESInet Core sites and is associated with SNMP alarms via threshold levels.

The tunnels offer a stateful connection across the AT&T ESInet locations so that both ends can quickly identify black holes or other network impairment. In addition, the tunnels are encrypted for management and security reasons, with AES256-based IPSec tunnel protection. Each router at a remote site has tunnels built from that router over its attached IP network to the mGRE hub interfaces at each AT&T ESInet Core site.

Automated call processing verification is accomplished between a management operations application and the AT&T ESInet processing elements (LNG, ESRP, and ESRF). Application test calls are further generated to PSAP end points. The management operations application is redundant. With an IP PSAP, test calls utilizing SIP are established to the PSAP CPE ESRP elements.

#### 2.4.8 BANDWIDTH

Respondents shall identify the minimum bandwidth required to handle all anticipated voice and data traffic of the system for the next five (5) years.

At a minimum Respondents shall base their bandwidth estimates on the delivery of all calls and associated data to the PSAP.

In addition, the bandwidth should include requirements for a fully functioning network with all redundant connections in service.

#### **AT&T Response:**

Comply. The AT&T ESInet implements twice as much bandwidth as is required to serve the total number of simultaneous calls that traverse the network. For example, a PSAP site that needs to support ten CAMA trunks needs a single T1 to support all ten trunks converted to IP. To meet redundancy requirements, two T1 circuits are provisioned to this site, supported by two separate routers. If the PSAP expands to twenty CAMA trunks, two additional T1s are ordered (each pair is typically bound together using MLPPP). If a single router or IP instance fails, enough bandwidth will still be available to support simultaneous calls to all of the PSAP's provisioned dispatch seats. The IP network is designed in a 100% capacity and 100% redundancy configuration so that if one IP carrier's network goes down, the redundant bandwidth can manage 100% of the PSAP's capacity. The end result is a network that is truly public safety grade in terms of capacity, reliability, and redundancy.

The AT&T ESInet requires 100kps per simultaneous call. This calculation factor includes management overhead and call specific data (e.g., PIDs-LO). The AT&T ESInet call processing bandwidth requirement for a given PSAP can be calculated as the total simultaneous calls a PSAP will accept times 100 kbps. Additional application bandwidth requirements should be added to the AT&T ESInet bandwidth requirements. Text messaging (SMS) does not require incremental bandwidth consideration.

AT&T has provided a bandwidth recommendation below which shows an approximate bandwidth recommendation to support the call volume and population communicated in prior sections of this RFP. When more information can be provided by the state, AT&T can provide a more definitive calculation.

#### 2.4.8.1 PSAP BANDWIDTH

Respondents shall provide a solution that can deliver adequate bandwidth to each PSAP for 9-1-1 voice calls, text to 9-1-1, data communications, and a sufficient surge factor. The growth factor used must conform to the current ANGEN model.

The minimum access portion of the network from the ESInet to the PSAP shall be **10 Megabits per second (Mbps)**.

Respondents shall continually monitor the bandwidth for the duration of the contract and dynamically increase the bandwidth when appropriate. The selected vendor will be required to supply a SLA consistent with the existing ANGEN solution. A description or sample of the SLA must be included in the response.

#### AT&T Response:

Comply.

AT&T ESInet™ PSAP network transport is implemented via our national AT&T Virtual Private Network (AVPN) service that can be scaled from 1.544Mbps to 10Gbs. Local provider access availability will determine the available site specific speeds.

AT&T's ESInet services provide an SLA for PSAP network capacity management to monitor network capacity at each PSAP and establish an operational action when engineered network capacity thresholds are reached.

Below is a chart with the recommended bandwidth requirements for current voice (RTP) and messaging (voice and text). It is based on the wireless call counts (provided by the State) and the understanding that these wireless call counts account for approximately 75% of all 9-1-1 calls processed for the State of Alabama. Once reviewed by the State, it should be understood that the 10 Mbps requirement is not necessary to support the current 9-1-1 call requirements. AT&T recommends that the infrastructure is built to support the 10 Mbps requirement physically in stages allowing the State to grow the bandwidth as needed. AT&T believes that it is in the best interest of the State to order the necessary bandwidth to support the existing

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traffic, and also have the capability to increase that traffic at any time without the need to order new facilities. AT&T has the appropriate tools built within the infrastructure to allow monitoring of the existing bandwidth usage and will notify the State as bandwidth is approaching capacity.

2015 ANGEN Call Volumes By County										
County	2015 Total	Average Month	% State	Avg Hourly	Assumed Busy Hour (*25)	Assumed Max Simultaneous 9-1-1 Calls	Wireline traffic	Bandwidth Kbps	T1s	Redundancy T1s * 2
Jefferson	371,830	47,653	20.91%	66	1320	22	8	3000	2	4
Mobile	284,576	23,715	10.40%	33	660	11	4	1500	1	2
Montgomery	210,670	17,556	7.70%	24	480	8	3	1100	1	2
Madison	152,949	12,746	5.59%	18	360	6	2	800	1	2
Tuscaloosa	138,640	11,553	5.07%	16	320	6	2	800	1	2
Baldwin	77,515	6,460	2.83%	9	180	3	1	400	1	2
Lee	70,111	5,843	2.56%	8	160	3	1	400	1	2
Shelby	61,533	5,128	2.23%	7	140	3	1	400	1	2
Houston	56,803	4,734	2.08%	7	140	3	1	400	1	2
Etowah	55,720	4,643	2.04%	6	120	2	1	300	1	2
Calhoun	51,523	4,294	1.88%	6	120	2	1	300	1	2
Russell	48,684	4,057	1.78%	6	120	2	1	300	1	2
Morgan	46,305	3,859	1.69%	5	100	2	1	300	1	2
Talladega	45,321	3,777	1.66%	5	100	2	1	300	1	2
Lauderdale	41,298	3,442	1.51%	5	100	2	1	300	1	2
Dallas	41,044	3,420	1.50%	5	100	2	1	300	1	2
Cullman	34,702	2,892	1.27%	4	80	2	1	300	1	2
Marshall	33,925	2,827	1.24%	4	80	2	1	300	1	2
St Clair	33,867	2,822	1.24%	4	80	2	1	300	1	2
Elmore	32,522	2,710	1.19%	4	80	2	1	300	1	2
Walker	31,516	2,626	1.15%	4	80	2	1	300	1	2
Limestone	25,180	2,098	0.92%	3	60	2	1	300	1	2
Colbert	24,895	2,075	0.91%	3	60	2	1	300	1	2
Escambia	24,571	2,048	0.90%	3	60	2	1	300	1	2
Chilton	23,117	1,926	0.85%	3	60	2	1	300	1	2
Blount	22,896	1,908	0.84%	3	60	2	1	300	1	2
Autauga	21,362	1,780	0.78%	2	40	2	1	300	1	2
Coffee	21,178	1,765	0.77%	2	40	2	1	300	1	2
Dale	20,105	1,675	0.74%	2	40	2	1	300	1	2
Butler	19,534	1,628	0.71%	2	40	2	1	300	1	2
DeKalb	19,174	1,598	0.70%	2	40	2	1	300	1	2
Chambers	18,931	1,578	0.69%	2	40	2	1	300	1	2
Marion	17,552	1,463	0.64%	2	40	2	1	300	1	2
Covington	16,703	1,392	0.61%	2	40	2	1	300	1	2
Marago	16,251	1,354	0.59%	2	40	2	1	300	1	2

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Pike	15,907	1,326	0.58%	2	40	2	1	900	1	2
Tallapoosa	15,805	1,317	0.58%	2	40	2	1	900	1	2
Franklin	15,769	1,314	0.58%	2	40	2	1	900	1	2
Macon	15,523	1,294	0.57%	2	40	2	1	900	1	2
Buster	15,033	1,253	0.55%	2	40	2	1	900	1	2
Pickens	14,943	1,245	0.55%	2	40	2	1	900	1	2
Jackson	14,942	1,245	0.55%	2	40	2	1	900	1	2
Meriwether	13,168	1,097	0.48%	2	40	2	1	900	1	2
Lawrence	12,819	1,068	0.47%	1	20	2	1	900	1	2
Greene	12,669	1,057	0.46%	1	20	2	1	900	1	2
Clarke	12,583	1,049	0.46%	1	20	2	1	900	1	2
Hale	11,516	960	0.42%	1	20	2	1	900	1	2
Barbour	11,360	947	0.42%	1	20	2	1	900	1	2
Geneva	10,746	896	0.39%	1	20	2	1	900	1	2
Cherokee	10,580	882	0.39%	1	20	2	1	900	1	2
Lewis	10,263	855	0.38%	1	20	2	1	900	1	2
Perry	10,199	850	0.37%	1	20	2	1	900	1	2
Winston	10,084	840	0.37%	1	20	2	1	900	1	2
Conecuh	9,232	771	0.34%	1	20	2	1	900	1	2
Bibb	8,457	705	0.31%	1	20	2	1	900	1	2
Cleburne	7,841	653	0.29%	1	20	2	1	900	1	2
Wilcox	7,615	635	0.28%	1	20	2	1	900	1	2
Washington	7,603	634	0.28%	1	20	2	1	900	1	2
Lamar	6,787	566	0.25%	1	20	2	1	900	1	2
Crenshaw	6,629	552	0.24%	1	20	2	1	900	1	2
Pandolph	6,609	551	0.24%	1	20	2	1	900	1	2
Choctaw	6,242	520	0.23%	1	20	2	1	900	1	2
Fayette	5,648	471	0.21%	1	20	2	1	900	1	2
Henry	4,910	409	0.18%	1	20	2	1	900	1	2
Bullock	4,475	373	0.16%	1	20	2	1	900	1	2
Clay	3,353	279	0.13%	0	0	2	1	900	1	2
Cocoa	3,174	265	0.12%	0	0	2	1	900	1	2

2.4.8.2 BANDWIDTH EXPANSION

The ESInet must be capable of expanding as needed throughout the duration of the contract period.

**AT&T Response:**

Comply. The AT&T ESInet is capable of bandwidth growth at each network element, existing end sites, and future end sites without sacrificing reliability of the solution. The solution is capable of interconnecting to other national- and/or state-level ESInets via open standards-based interfaces. The AT&T ESInet model is deployed from a network perspective with a 2N redundancy model – each remote site is provisioned with twice as much bandwidth as is required to serve the total number of TDM voice trunks provisioned at the site.

The network has the scalability to adjust bandwidth to changing needs easily, quickly, and with minimal operational impact. The bandwidth for each data center will support the bandwidth requirements and ease of future growth of the PSAP network.

The AT&T ESInet solution provides a fully compliant, scalable environment in the existing LNG and ESInet Core infrastructure. The LNGs operate with redundancy at each location and are configured at 100 Mbps on 1 GIGE interfaces. Therefore the bandwidth is expandable in a short timeframe with no need for a forklift upgrade.

#### 2.4.8.3 BANDWIDTH SHARING

Respondents shall describe how their QoS scheme ensures that separate RTP sessions are not sharing bandwidth.

Since the ESInet may be used for additional services, respondents must provide a description of how bandwidth is prioritized and separated from normal IP traffic.

##### **AT&T Response:**

Comply. IP Circuits between any two end-points are configured to support the maximum number of simultaneous calls that can occur between those end-points. The local loop connections from each PSAP use a private VPN tunnel for 9-1-1 that is sized according to the needs of the overall solution. Voice traffic within a given tunnel shares guaranteed bandwidth based upon QoS configuration. If other non-9-1-1 traffic is using the same connection it will be in a separate VRF instance. Additional bandwidth may be required to support other IP traffic beyond AT&T ESInet voice and data requirements.

#### 2.4.8.4 LOSS OF BANDWIDTH

Respondents shall configure the dynamic routing protocol to prevent serious loss of bandwidth, denial of service due to routing table updates or other behavior while providing automatic rerouting as quickly as is reasonably possible.

##### **AT&T Response:**

Comply. Loss of bandwidth for critical data is prevented through the use of a QoS configuration where traffic classes of service (COS) for shaping and prioritization are defined. AT&T ESInet provides intrusion detection and prevention strategies to mitigate loss of bandwidth issues. The IPSLA and eBGP strategies also ensure appropriate bandwidth availability. Provisioning of twice the necessary capacity reduces the likelihood of loss of bandwidth.

#### 2.4.9 IP ROUTING

The Board requests that Respondents propose the most efficient and effective IP routing solution that meets the intent of this RFP.

As the transition from IP version 4 (IPv4) and IP version 6 (IPv6) is on-going, the proposed IP network infrastructure shall be configured to support and route both IPv4 and transition into IPv6.

Respondents shall describe how their ESInet configuration meets an ability to associate IPv4 and IPv6 in a seamless routing configuration.

Respondents must also describe how a combined IPv4 and IPv6 platform will be managed and monitored to avoid potential errors.

**AT&T Response:**

Comply. All production systems are currently configured to operate with an IPv4 scheme. The AT&T ESInet will provide either an IPv6 or IPv4 interface to external entities as desired. The solution utilizes VoIP technology and is accessible via virtual private network connectivity for online monitoring, system administration, and maintenance. All external interfaces will support IPv6 interfaces according to NENA i3 standards. Some components of the internal network support only IPv4; however, this will not be a limitation for this solution.

When an IPv6 device sends a request packet to an IPv4 device, the ESInet Core strips down the IPv6 packet, removes IPv6 header and adds IPv4 header and passes it through. The reverse happens when the response comes back from the IPv4 device to the IPv6 device.

**2.4.9.1 INTERNET PROTOCOL PACKET DELIVERY**

Respondents shall ensure that the IP routing protocol used in the ESInet provides delivery of IP packets from end to end. All IP information from one IP device to another IP device within the network must be guaranteed.

**AT&T Response:**

Comply.

End-to-end IP packet delivery is guaranteed in the AT&T solution.

AT&T uses Transmission Control Protocol (TCP) within the ESInet and highly recommends that PSAP call handling solutions support TCP. If the size of the SIP INVITE is within 200 bytes of the maximum transmission unit (MTU) of an Ethernet frame, fragmentation is likely to occur. Fragmentation may have impacts ranging from call setup delays of unknown duration and quantity, to blocked or abandoned calls. In some instances, fragmentation has no discernible impact to the call. Packet fragmentation is not unexpected, and it can be handled appropriately with the use of Transmission Control Protocol (TCP). Another protocol, User Datagram Protocol (UDP), is commonly used in VoIP implementations. This protocol differs from TCP, and its mechanisms for handling packet fragmentation are weaker.

While AT&T's ESInet solution can support both UDP and TCP, AT&T recommends that TCP be used. This recommendation is based upon the packet size experienced within AT&T's ESInet solution, the anticipated growth of such packet sizes with forward-looking NG9-1-1 message sets and applicable standards including the NENA i3 specification and IETF RFC 3261.

AT&T supports NENA i3 standards and strongly recommends that TCP be utilized by call-handling solutions interfacing with AT&T's ESInet solution.

The proposed solution follows the OSI model, which defines a networking framework to implement protocols in seven layers. The proposed solution is a fully IP-based solution. The IP model has four layers, while the OSI model is more granular.

Table 2: OSI Model vs. IP Model

OSI Model	IP Model
Layer 7: Application	Layer 4: Application
Layer 6: Presentation	
Layer 5: Session	
Layer 4: Transport	
Layer 3: Network	Layer 3: Routing
Layer 2: Data Link	Layer 2: Data Packets
Layer 1: Physical	Layer 1: Cabling Structure

Our solution’s reliance on IP technology allows the resulting system to share information and still be robust enough to accommodate large amounts of data being streamed over IP. This creates a fluid call-delivery operation that is not impeded by network congestion or applications that become clogged by excessive information.

We use multiple strategies and a comprehensive set of tools for monitoring and management of the solution. All AT&T ESInet PSAP and LNG routers advertise a single IP address into the IP Core. The routers use these single endpoint addresses to build stateful tunnels across the IP networks, and then peer directly over those tunnels using eBGP with the central site routers. The BGP timers are set to an extremely low value for the sessions occurring over the tunnels – this causes the peering relationship across the tunnel to fail quickly if there is any type of reachability condition inside a given IP network, which will force any traffic between the two affected sites to prefer a tunnel across an alternate IP network. Additionally, multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened.

**Commented [e21]:** AT&T to review and revise as appropriate.

**Commented [TMA22R21]:** AT&T technical sales team, please review my suggested response.

2.4.9.2 IP ROUTING PROBLEM RESOLUTION

Respondents shall describe how their proposed solution will interoperate with other operators of interconnected networks and will cooperate with those providers to resolve IP routing problems.

The selected vendor will be responsible for ensuring that discrepancies or deviations from standards within the respondent’s network are documented and corrective action taken to overcome conflicts with other operators.

**AT&T Response:**

Comply.

IP Routing Issues would be resolved after opening a ticket with the 911 Resolution Center. The 911 Resolution Center would engage appropriate resources and the Service Executive would oversee the problem troubleshooting and resolution process.

The AT&T ESInet implements NENA i3 standard interfaces. Pre-production testing is performed both internally to the AT&T ESInet functions as well as externally to each PSAP prior to “go-live”. This reduces the possibility of IP resolution/conflict issues.

Commented [e23]: AT&T to review and revise as appropriate.

#### 2.4.9.3 AUTOMATIC INTERNET PROTOCOL REROUTING

Respondents shall describe how their proposed solution minimizes the impact of routing errors within the network by automatically rerouting past failures or interruptions.

##### AT&T Response:

Comply. All AT&T ESInet PSAP and LNG remote routers advertise a single IP address into the IP Core. The routers use these single endpoint addresses to build stateful tunnels across the IP networks, and then peer directly over those tunnels using the external Border Gateway Protocol (eBGP) with the central site routers. The BGP timers are set to an extremely low value for the sessions occurring over the tunnels; this causes the peering relationship across the tunnel to fail quickly if there is any type of disruption/degradation in network continuity inside a given IP network, which will force any traffic between the two affected sites to prefer a tunnel across an alternate IP network and automatically reroute traffic.

#### 2.4.9.4 BACK TO BACK USER AGENT USAGE

Respondents must provide the ability to cross ESInet boundaries to ensure no limitations or dropping of packets. If SIP or RTP traffic needs to cross boundaries the traffic shall be handled by a back to back user agent (B2BUA); a type of session Boarder controller (SBC).

Respondents shall describe where B2BUAs are located within their solution and document the use of B2BUAs in their ESInet. Respondents must include an explanation of how the seamless delivery of traffic can be maintained using SIP and RTP between IPv6 and IPv4 networks.

##### AT&T Response:

Comply. The AT&T ESInet solution implements B2BUAs at the ESRP/IPSR application control function and the SBC. The application control function performs routing of ingress traffic to PSAP destinations, accomplishes call conference/transfer functions and numerous maintenance functions. The SBC performs ESInet security functions and operating as a B2BUA is an element of that security function.

The ESInet solution supports providing external interfaces in either IPv4 and IPv6 addressing schemes. The ESInet internally manages transition to IPv6 over time as all devices provide

support for IPv6. ESInet edge devices perform mapping from internal IP addressing schemes to external entities.

#### 2.4.9.5 SUBNET NUMBER ASSIGNMENTS

The Board may allow the integration of other networks with the ESInet. To avoid potential conflicts for address space, Respondents shall document and provide a report of all subnet address assignments to the Board prior to implementation of the ESInet.

##### **AT&T Response:**

Comply. AT&T will provide a report of all subnet address assignments to the Board as required.

#### 2.4.9.6 NETWORK STATIC ADDRESSING

Respondents shall ensure that static IP address routing is configured at all core network interfaces to avoid IP configuration errors.

##### **AT&T Response:**

Comply. It is considered best practice that the ESInet Service-provider, administer the IP address space. AT&T, as the service-provider, would assign new addresses as required.

AT&T uses dynamic IP routing at the application layer. The ESInet solution is able to interoperate with other regional IP networks. The interconnection with other ESInets will need to be carefully planned and executed. All significant points of interconnectivity between networks will be safeguarded using a full suite of techniques compliant with those described for an i3 Border Control Function (BCF).

#### 2.4.9.7 "LOOPBACK" INTERFACE

Respondents shall define an interface to allow for loopback testing within the ESInet. The loopback interface shall be installed at each network element to provide administration functions.

##### **AT&T Response:**

Comply. AT&T understands the importance of loopback interfaces on all network elements and deploys this essential troubleshooting practice on all components that support the feature and complies.

Various on-demand and background tests exist to verify the end to end capabilities of the AT&T ESInet. One such example is the Continuity Test (COT) performed between the AT&T ESInet solution Core, the SS7 network, and the LNGs to conduct loopback and tone check testing on the path before a circuit is established to detect any failure of DS0 channels.

From an IP perspective, all elements are verified through an automated call processing verification, which is accomplished between a management operations application and the AT&T ESInet processing elements (LNG, ESRP, and ESRF). Application test calls are further generated to PSAP end points NOC engineers have fulltime access to all network elements managed by the AT&T ESInet. This capability allows for administrative functions to be performed remotely and in a timely manner. 24x7 onsite technicians are additionally available for any maintenance or "remote hands" requirements of the system.

#### 2.4.10 DIVERSE NETWORK ENTRIES

The Board requires an ESInet design that incorporates diverse network entries to connection points and PSAPs. The Board recognizes that in several cases there may not be physically diverse entrances into PSAPs.

Where diverse entries are not possible; Respondents shall describe their methodology to implement the most diverse solution possible.

Respondents shall describe their methodology for providing redundancy through the use of diverse network entries where possible.

#### AT&T Response:

Comply. AT&T assumes that the State's ANGEN datacenters have already achieved network diversity for aggregation of Origination Service Provider (OSP) traffic. The AT&T ESInet™ provides diverse entries into our core call processing facilities.

To meet redundancy best practices, two connections are recommended at each PSAP site supported by two separate edge routers and two separate IP instances. If available, T1 connections are established from two separate physical paths. Newer PSAPs often arrange for dual utility entrances to their facilities during construction planning. This alternate facility is rarely implemented in older PSAPs due to the cost. AT&T works with a number of facility construction contractors in the State of Alabama and can arrange for this capability where required at additional cost. Where redundant facilities are run, it's desirable to maintain a 25 foot separation from the end-office to the PSAP. This may or may not be possible based on Right-of-Way considerations, and will be implemented at additional cost. If diverse entries aren't available at the PSAP, AT&T's project team will work with the PSAP personnel to implement the best possible solution.

Commented [r24]: AT&T should elaborate as to availability

#### 2.4.11 NETWORK DEMARCATION POINT

Since the ESInet may be interconnected to other ESInets or facilities, Respondents shall establish demarcation points and the physical connection requirements for other operators to connect to the designated demarcation point.

In addition, demarcation between the Access Network facilities that connect an edge site, such as a PSAP site, to the Core Network, meet the Core Network at a point of interconnection (POI).

Respondents shall explain their preferred methodology for establishing network demarcation points.

**AT&T Response:**

Comply. Demarcation in NG9-1-1 can be sorted into two types: Physical Demarcation and Logical Demarcation. Physical Demarcation points are between the actual hardware within the PSAP network and between the AT&T ESInet and (a) the originating carrier networks, and (b) the PSAP facilities. Logical Demarcation points are determined by interfaces between functional elements within an ESInet and those devices and/or applications that interact with the ESInet.

There are multiple physical demarcation points within the AT&T ESInet solution. Not only will the OSP be provided redundant physical locations for termination, but also multiple available protocols. Assuming the OSP is providing a TDM handoff into the ESInet, the OSP is responsible for configuring and terminating voice traffic to at least two LNG ports designated by AT&T. These ports will be geographically redundant. If the OSP has the capability to terminate traffic via i3 IP protocols, the termination point is at a minimum of two AT&T ESInet Core locations.

From a PSAP perspective, the demarcation point is one of two physical locations. If the PSAP is a legacy PSAP that can only be served with legacy CAMA trunking, the AT&T demarcation point is the carrier side of the 66 block. For an IP PSAP, the demarcation point is a port provided on the AT&T router. Please see the diagrams below for further clarification.

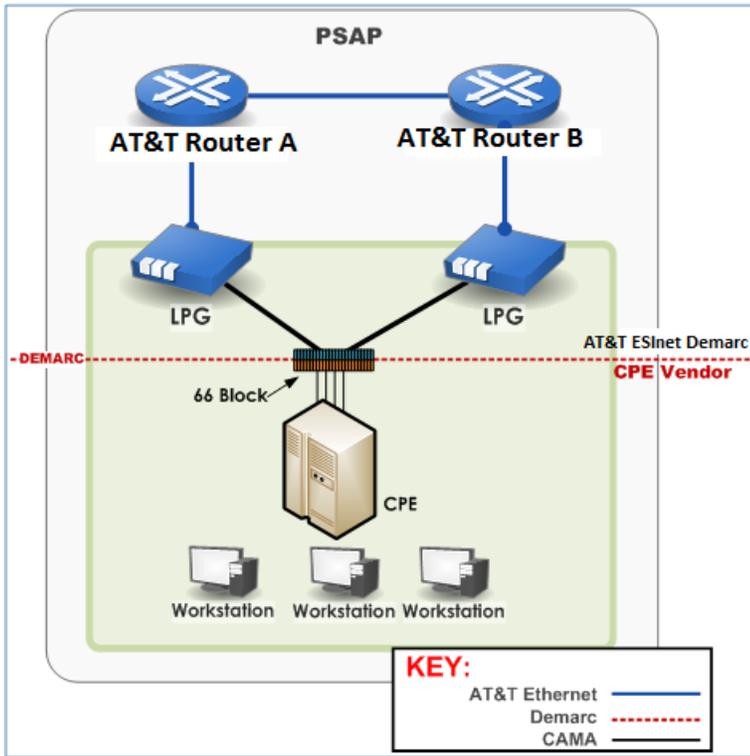


Figure 8: Demarcation – Legacy PSAP

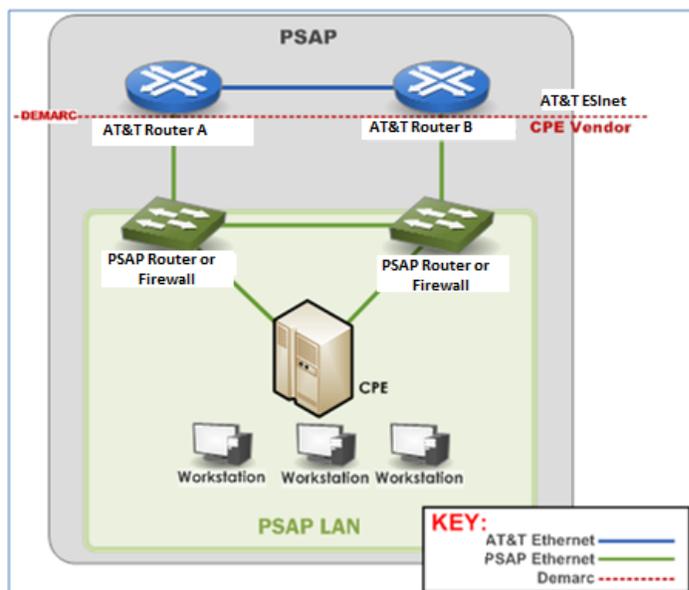


Figure 9: Demarcation – IP PSAP

For ESInet-to-ESInet connectivity in the AT&T ESInet a demarcation point is a mutually-defined boundary dividing one area of responsibility from another. A demarcation point has no meaning unless all stakeholders agree on its location, such as the location is specified by industry standards or regulations. Therefore it is critical that a demarcation point is established through consensus. The IP connection is established from the AT&T ESInet Core sites. It is understood that if a connection is used from both ESInet providers, the ESInet providers agree as to ownership of topology and cost.

Compared to OSI models, physical points of demarcation in NG9-1-1 occur on Layer 1, the physical layer, while logical points of demarcation occur on the remaining layers 2-7.

2.4.12 ACCESS NETWORK - EDGE SITE INTERFACE

The edge or PSAP sites should interface via 100 Megabit per second (Mbps) or faster port speed connection.

This interface to the local LAN is not considered a part of the NG9-1-1 network but should be considered as an element of the ESInet infrastructure.

Respondents shall describe the Local Area Network (LAN) interface at each of the edge sites.

**AT&T Response:**

Comply. There are two types of handoffs from the AT&T ESInet to the PSAP CPE. If the CPE is IP-capable, the LAN interface will be a RJ45 port on each router provided to the PSAP. If the PSAP only supports a legacy CAMA handoff, the handoff will be patch panels provided for the PSAP to cross connect into their existing legacy CPE system.

*2.4.13 TIME SERVERS*

A time server to synchronize all proposed network resources must be included in the proposed solution.

The time server must be connected to redundant time sources located within the ESInet capable of providing accuracy to 20.0 milliseconds (ms) of true time.

Respondents shall include a system for establishing network time protocol for the network in their proposal.

**AT&T Response:**

Comply. The AT&T ESInet systems and applications are free of any and all dependencies related to calendar date and time. The internal time server that supports the systems and applications associated with the ESInet and GIS/ALI database processes provides the current, local, and GMT time and date used for logging and call detail reporting. It also provides a more granular, precise clock used by the system's synchronization mechanisms and CPU thread management and scheduling.

These functions are not bound by future time or calendar events. All operating system and hardware firmware clock management facilities are designed to manage natural, electro-mechanical, time drifts and necessary leap corrections as a standard clock function for accuracy.

**2.5 ANGEN NETWORK FAILOVER**

The proposed solution must contain a network failover function that is capable of recognizing faults and automatically taking measures to avoid the fault. At a minimum the network shall provide for instant switch from failed or degraded components, systems, and networks.

The failover system shall conform to industry standards and shall comply with the other recommended standards presented in this RFP and must embrace open standards to maximize the fail over ability of all components.

Respondents shall describe in detail their methodology both operationally and technically for implementing automated network failover as a component of their proposed ESInet.

**AT&T Response:**

Comply. The AT&T ESInet is designed to achieve highly available service architecture through an active-active processing methodology, geographic diverse and distributed components, highly available component architecture, and redundant IP transport. The AT&T ESInet achieves 99.999% service availability for call processing and has no single point of failure that will disrupt the ability to provide on-going call processing. All functions necessary for call processing are deployed in a highly available configuration and duplicated across Core and LNG sites. Transactions or call traffic divert to available components on failure or degradation of service of a given functional component or a loss of a physical site. IP transport paths for critical service components are redundant and designed for multipath IP packet delivery so the failure of a given IP transport mechanism will not affect overall service availability. The AT&T ESInet components are designed and configured for continuous operation as referenced in the NENA i3 Standard.08-003 Version 1.0.

All redundancy mechanisms for Core applications and network elements that support delivery of emergency 9-1-1 calls across the AT&T ESInet solution (Routing LNG, ESRP, and ESInet components, LIS, ECRF, ADR, and ALI) employ “failover” procedures which are automatic and do not require human intervention.

The use of multiple IP instances allows network equipment to fail away from a temporarily-impaired IP Core. This can be a relatively common occurrence – small black hole events will occur from time to time within the provider’s IP Core. These are typically too short in duration to disrupt TCP-based data services, but can cause dropouts and audio artifacts in voice (RTP) streams. In addition to creating redundancy at the hardware and circuit level, using multiple IP providers provides redundancy at the path level. To exploit this, remote site routers form routing relationships across the IP Cores to the Core site routers, and perform constant end-to-end quality testing. If a given path is impaired, the network switches to an alternate path over a different IP Core with minimal impact to active calls.

**AT&T ESInet Routing Network: Procedures/Functions Used for Fail-over**

The AT&T ESInet uses a fully redundant, multi-path, multi-protocol network linking all ESInet Routing elements. Within each redundant node, there are redundant network elements.

Transport

The AT&T ESInet network quickly detects impairment (packet loss, jitter, etc.) and soft failures; e.g., a loss of transit across an IP L3VPN instance with no detectable circuit loss or BGP route withdrawals at the edge. Immediately upon detection, traffic is moved to another unimpaired network resource without interrupting existing data flows or voice RTP streams.

### Routing

All ESInet edge routers advertise a single IP address into the AT&T ESInet IP Core. The edge routers use these single endpoint addresses to build stateful tunnels across the Core and then peer directly over those tunnels using BGP with the Core routers located at the data centers. The BGP timers are set to an extremely low value for the sessions occurring over the tunnels, which causes the peering relationship across the tunnel to fail quickly if there is any type of failed condition. This forces traffic between the two affected sites to prefer a tunnel across an alternate network path. Failover between networks occurs seamlessly and typically occurs within 500 to 2000ms.

Diverse connectivity provides fault tolerance for site connectivity. The network routing infrastructure is designed and deployed in an N+1 model. N+1 redundancy provides a minimum of one additional unit, module, path, or system in addition to the minimum required to satisfy the base connectivity so that a failure of any single component at a given diverse site will not render the location inoperative.

## 2.6 ANGEN NETWORK SECURITY

Respondents shall propose a solution that meets a minimum level of security as defined by the national standards.

The Board requires that proposed solutions comply with the Federal Bureau of Investigation (FBI) Criminal Justice Information Services (CJIS) Security policies and practices.

They may be found at <http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/view>.

Respondents shall propose how their solution meets these security measures and how they comply with future changes to security measures to ensure that:

- Network operations are not disrupted due to a security breach
- Unauthorized individuals cannot access the network
- Least access policy is applied
- Data theft does not occur
- Monthly assessments of vulnerabilities and frequent scans for malicious activity occur
- Security incidents are documented, risks identified, responded to and mitigated
- Management of security changes are documented
- Security documentation is maintained to aid in forensic audits as necessary
- Security data is maintained as recovered and not modified or deleted
- Intrusion protection and Intrusion detection is implemented throughout the network to eliminate breach of security
- Protection from identify theft occurs

**Commented [TMA25]:**

**Q&A response listed below:**

It is the expectation of the Board that any ESInet services provided under contract would also be capable of transporting CJIS data to and from the connected PSAPS.

In order to meet this expected level of service, any proposed ESInet solution must apply CJIS policy to all traffic, and you must provide a description of each element outlined in the bullet points in Section 2.6 ANGEN Network Security.

The CJIS policy covers all aspects of the network operation and is not traffic dependent.

**AT&T Response:**

Comply.

**Commented [TMA26]:** AT&T team – please review proposed response derived from the Indiana RFP.

**AT&T Public Safety Security Philosophy**

- Security is based on a multilayer or building block approach.
- Approach provides for the assignment of risk based on Zones or Domains.
- Domains can be viewed as having the characteristics of Trusted or Untrusted Realms.
- Trusted Realms include areas of the network where AT&T has control or influence of traffic and access mechanisms, to minimize and mitigate the risk of unwanted activities.

**Domains, Zones and Realms**

Typical security zones or security domains in the Next Generation ESInet deployments include four (4) main realms and can be defined as:

- Call Routing or Core Realm (ESInet)
- Call Handling or Host Realm (Customer Host)
- PSAPs Realm (Customer)
- Other ESInet Core Realm (such as another Carrier connecting to the Core ESInet)



Figure 11: Typical security zones or security domains in the Next Generation ESInet deployments include four (4) main realms.

**Steps taken by AT&T to protect the Core**

- Information is categorized as Voice or Data.
- Voice traffic is referred to as SIP/RTP.
- SIP and RTP are the protocols used for call setup and voice.

- SIP and RTP traffic route through Session Border Controllers (SBC).
- Data traffic is controlled by Firewalls and Data Border Elements.
- Ingress using TDM (SS7): Risks of unwanted traffic is limited and minimal.
- Ingress using IP: Risks are substantial and susceptible to unwanted traffic.
- AT&T continues to work within the industry to develop the appropriate security protocols, interface agreements and methods to ensure safe interconnection.
  - *Example:* In the future, when an originating carrier wishes to connect to an AT&T ESInet call routing Core, they will connect by IP utilizing SIP/RTP. This type of traffic will be passed through the SBC's.
- Data Traffic will be passed through firewalls.
- The first level of security provide by the Core is Physical Access.
  - Eliminates the "walk up, plug in, laptop" type of attack.
- Incorporating MAC filtering on the Layer 2 switches and disabling unused switch ports.
- Access Control Lists (ACL's) are employed to eliminate unwanted traffic types or users from entering the protected domain.
- AT&T Chief Security Office (CSO) policy requires all AT&T Servers and Workstations, as well as all Layer 2/3 devices are kept up to date with available OS patches and Antivirus.
  - Operating System (OS) patching minimizes recent known threats to the components of the Core.
- If AT&T WAN Transport problems are reported, they will be isolated, diagnosed and resolved by the appropriate AT&T network management center.

AT&T also adopts stringent security practices in our network as well as our solutions offering and welcomes any further discussions with the State of Alabama regarding adherence to these policies.

The AT&T ESInet solution is configured to integrate with other security solutions (e.g., patch management), depending on the specifics of what needs to be accomplished. Servers in the solution come equipped with anti-virus and malware protection. AT&T employs an Incident Handling process modeled on FEMA's Incident Command System. Notifications are built into this process.

The AT&T system adheres to CJIS policies and NENA 75-001 (NENA Security for Next-Generation 9-1-1 Standard [NG-SEC]) and NENA 04-503 (PSAP Security), as applicable. Our solution provides for the centralized management of user permissions, rights, and security settings by designated administrators. The system administrators can use the application to manage user roles and privileges, including granular authentication, user profiles, and other security rights.

**Commented [TMA27]:** Please check with West to verify their use of anti-virus and malware protection.

The system can be configured so that wherever an authenticated user logs in, without regard to which workstation or which PSAP, all the user's rights, permissions and configurations follow that user.

Appropriate AT&T personnel hold a CCNA Security certification.

The proposed system is password-protected, so only properly credentialed, authorized users can use it. Security options can be configured according to user group. Administrators can create groups of user-assigned roles with associated user settings to be automatically applied when users are authenticated during log-in.

Protecting against potential network-level threats, including DOS and DDoS attacks, should be deemed the responsibility of the various ingress network carriers.

### **MPLS Network Security**

The AT&T IP network is known for its reliability, security and redundancy. It uses a private, high-speed, MPLS IP backbone, not the public Internet, for transmission; and it has an availability target of 99.999%. We accomplish this through problem detection, prevention, redundancy, and restoration offers to ensure that the network is always up and running.

In keeping with the robust security employed through all AT&T's network infrastructures, AT&T CSO has developed a VoIP Security Architecture that strengthens the service at potentially vulnerable points. This Security Architecture deploys a "Defense In-Depth" approach to provide a multi-layered secure environment. Security mechanisms are deployed throughout the service in addition to the multi-layered security provided by the network itself, in order to provide seamless and effective security. AT&T's world-class experience in both IP and Telephony Security provides the following key security differentiation.

- Availability of the VoIP Service: Stop denial or deterioration of service functionality
- Integrity of the VoIP environment: Prevent theft and fraudulent use of VoIP. Prevent system functions or data from being corrupted
- Confidentiality and Data Privacy in VoIP: Keep information secure and private

The AT&T IP/MPLS Converged Network deploys the same attention to state-of-the-art security measures as have been provided on traditional PSTN networks:

- AT&T Security Policy and Requirements (ASPR) and AT&T OneProcess provide the security foundation.
- AT&T Internet Protect helps protect against worm/virus attacks and will offer DDoS (denial of service) protection.
- A 24x7 Security Network Operations Center (SNOC) is available.
- AT&T MPLS Voice Aware Network provides security and QoS.

- AT&T Global Fraud Management System protects AT&T VoIP against fraud.
- AT&T hub-and-spoke MPLS VoIP VPN for customer access helps to provide security and QoS for AT&T.

In the AT&T MPLS network, customer services are provisioned on specific interfaces of an MPLS VPN by using known IP addresses. This approach enables us to authenticate users and traffic. Rather than supporting signaling or voice encryption, we rely on the MPLS security to provide confidentiality for signaling and voice.

Respondents shall include physical and logical security precautions in their proposed solution that meet the minimum criteria outlined above. This includes providing a description of any security based appliances necessary to meet the objectives including:

- Firewalls
- Access Control Lists
- Switches
- Routers
- Intrusion Protection devices
- Intrusion Detection devices
- Specialized Cabling

Respondents shall describe in detail how the proposed network is configured to withstand these attacks and protect the integrity of the entire 9-1-1 system.

#### AT&T Response:

Comply. AT&T ESInet implements a defense in depth architecture by utilizing firewalls, intrusion protection and intrusion protection systems (IDS/IPS), anti-virus, real-time malware analysis, security information and event management (SIEM), data loss detection, and the principle of least privilege.

All systems utilize the highest capabilities of protection and authentication available, including IPsec and SSL VPN technology for remote access from un-trusted networks, SSH for encrypted management capability, and two-factor authentication for remote access to sensitive applications along with digital certificate verification. Operating system and application protections are configured for segregation of duties, and strong password policies are enforced to ensure that password length and minimum change restrictions are followed. Strict auditing controls are enforced across the enterprise using facilities including Tandem Safeguard and specific facilities available in other operating systems including HP-UX, LINUX, Microsoft, and Tru64 Unix.

Remote access to AT&T's network is permitted providing that authorized users are authenticated, and privileges are restricted. Remote access is only permitted via equipment which utilizes an AT&T approved firewall, anti-virus protection, and strong authentication. Any

connections over the Internet must employ the AT&T VPN client or utilize AT&T Information Security-authorized IT processes.

Remote access to perform systems administration tasks is achieved over Secure Shell (SSH). AT&T administrators follow the principle of least privilege to ensure that all user accounts only have the necessary privileges to perform the work.

Commented [e28]: AT&T to review

AT&T will provide 24x7x365 monitoring of the Alabama 9-1-1 network and equipment. For security purposes, AT&T does not allow outside vendor/customer access to monitoring equipment. AT&T will provide real-time reporting capabilities as well as access to the NOC for real-time updates on network and equipment health.

Commented [TMA29R28]: Need review/concurrence from AT&T TSC team.

AT&T incorporates a robust strategy for identity management, and user access to AT&T web-based applications is protected through an identity management system. New users must complete a rigorous online registration process. Multi-factor authentication and role-based access control are used to restrict user access to AT&T's trusted resources. User access via the public Internet requires two-factor authentication, where one factor is provided through user name and password and the second factor is provided through a dynamic, randomly changing secure access code from an AT&T-provided security token. Users are configured in the AT&T identity management system and linked to a specific security token and configured for access to a defined list of applications.

#### 2.6.1 INTRUSION PREVENTION AND DETECTION

Respondents shall describe how their proposed intrusion prevention and detection capabilities provide alerting, logging and reporting of security threats by intruders to the network. In addition, the ability to document and log intrusions must be discussed within the response.

##### AT&T Response:

Comply. AT&T ESInet implements industry standard intrusion detection and prevention capabilities. Monitoring and management of network security is an integral part of our methodology and policies. The AT&T ESInet solution is capable of processing all traffic, but administratively denies protocols identified as a threat or that otherwise fall outside of pre-defined parameters. This is partially managed via routing tables and/or Access Control Lists (ACLs). We continually investigate and upgrade with new advances in protective technology. The solution provides alerting, logging, and reporting of intrusions to a security information events management system (SIEM). The SIEM provides the ability to document and log intrusions.

#### 2.6.2 ENCRYPTION

Respondents must include the advanced encryption standard (AES) on their proposed solution where appropriate.

#### AT&T Response:

Comply. AT&T employs encryption-in-transit where possible on networks not under direct AT&T control. Encryption is achieved either using SSL/TLS or IPSec VPN. AT&T does not encrypt data-at-rest at the database level; as a compensating control, database servers are hardened at the operating system and application level and employ Principle of Least Privilege when assigning access for users and applications to database tables.

The tunnels offer a stateful connection across the IP Cores, so that both ends can quickly identify network impairment. In addition, the tunnels are encrypted for security reasons, with IPSec tunnel protection. Each router at a remote site has multiple tunnels built from that router over its attached IP network to the multipoint Generic Routing Encapsulation (mGRE) hub interfaces at each AT&T ESInet core site.

As part of the AT&T ESInet solution, AT&T provides a Border Control Function for encryption and interface with any non-trusted network components. AT&T's Border Control Function (BCF) provides session border control and border firewall functionality in accordance with the National Emergency Number Association (NENA) 08-003 specification. The BCF inspects, modifies and controls SIP signaling and associated media where Emergency Services IP Networks (ESInet) and agency networks interconnect and where the ESInet connects with service provider networks. The BCF mitigates security threats, resolves interoperability problems and ensures reliable SIP-based communications. It is designed to protect and control real-time voice, video, and text NG9-1-1 sessions as they traverse IP networks between callers and Public Safety Answering Points (PSAPs).

The solution for border control functions includes both security functions for the ESInet as well as the applications that ride the ESInet which include but are not limited to the SIP traffic on the ESInet. Our recommended solution provides for the installation and maintenance of redundant network appliances at each data center to ensure secure end-to-end call, data, and text delivery.

#### 2.6.3 NETWORK SECURITY STANDARDS

Respondents shall describe how their network security solution complies with the following Standards:

- NENA Security for Next-Generation 9-1-1 Standard (NG-SEC, document 75-001 dated February 6, 2010)
- Next Generation 9-1-1 Security (NG-SEC) Audit Checklist NENA 75-502 V1
- NENA i3 Technical Requirements Document 08-751
- NENA Detailed Functional and Interface Standards for NENA (i3) Solution Stage 3 08-003
- FBI Criminal Justice Information Services (CJIS) Security Policies
- <http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/view>

**AT&T Response:**

Comply. AT&T solution complies with the applicable NENA Network security standards as stated above.

**2.6.4 REMOTE ACCESS AND NETWORK SECURITY AND FIREWALLS**

Respondents shall specify a firewall solution within its network that provides security and protection to the system. All such interfaces connected shall be in accordance with mandated security requirements.

- a. Secure remote access shall be strictly controlled. Control will be enforced via remote access authentication using security tokens that provide one-time password authentication or public/private keys with strong pass-phrases.
- b. Remote Access control will be enforced via network and system level auditing.

**AT&T Response:**

Comply. AT&T requires two-factor or certificate-based authentication for all remote connectivity.

**SECTION 3 ANGEN SPECIFIC REQUIREMENTS**

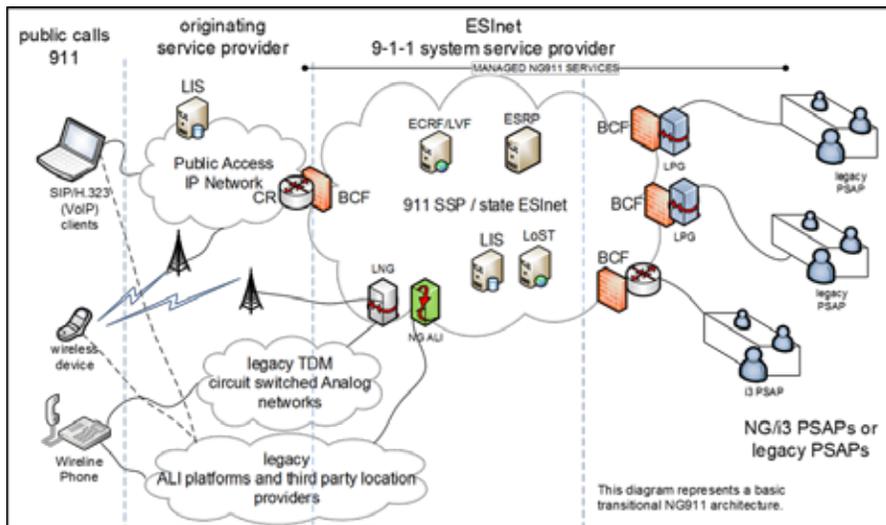


Figure 10 - ANGEN Conceptual Design Diagram

**3.1 SYSTEM SERVICE PROVIDER COORDINATION REQUIREMENTS**

Successful Respondents will be required to coordinate with other service providers as necessary to operate a seamless solution in support of the operation of ANGEN.

Respondents will need to enter into Interconnection agreements which legally allow the connectivity and interconnection with other networks as well as other service providers throughout Alabama.

This includes but is not limited to LECs, CLECs, ILEC and all Wireless Carriers providing service in Alabama.

Respondents shall provide the Board with example agreements, relationships, licenses or other documents demonstrating Respondents legal ability to enter into such agreements.

Examples of interconnection and cooperative agreements with third parties include but are not limited to:

- pANI (pseudo ANI) and IP provider ALI records integration
- third party providers (TCS and Intrado) E2+ interfaces
- Inter-company ALI server connections (to AT&T, CBT)

Commented [e30]: Does AT&T have these agreements in place (most likely) AT\*T should provide copies of those agreements for this response.

Commented [TMA31R30]:

**AT&T Response:**

Comply.

AT&T is currently providing 911 Services throughout the state and in several other states across the USA. We have the appropriate agreements, relationships, licenses, and interconnections agreements necessary to provide 911 services statewide.

The AT&T ESInet solution will provide interconnection to a variety of networks and physical locations. These include, if required, any/all data centers serving 9-1-1 traffic, any bordering legacy networks, or any bordering ESInet using IP interconnection, assuming that ESInet follows all NENA i3 standards.

We will work with the State to develop a joint communication to each PSAP, government organization, and appropriate TSPs outlining the scope of services to be implemented, a high-level implementation schedule, and key contact information for each entity. We can distribute the communication on behalf of the State.

AT&T takes responsibility for facilitating the establishment of TSP communication guidelines with the State and adhering to these guidelines for the project implementation and service duration. AT&T establishes expectations with each TSP and manages communication to the TSP for items related to the AT&T ESINET services on behalf of the State. We will escalate to the State as appropriate regarding TSP initiatives and will request State intervention when necessary.

As part of AT&T's location data management services, AT&T continue to will work collaboratively with the State, other ALI database providers, and all wireless/VoIP providers to validate IP selective routing data records and pANI (ESRK/ESQK) records through the DBMS and post to the AT&T ESInet routing database and ALI/LIS systems.

AT&T works with TSPs and neighboring ALI providers to load pANI shell records (ESRK/ESQKs) and provision ALI steering tables upon receipt of said pANIs to enable ALI retrieval using the E2 interface. AT&T will also send pANI shell records received from wireless and VoIP CSPs operating in a customer's service area to other ALI providers. In conjunction with pANI shell record provisioning through the DBMS, AT&T will provision the ALI steering tables to ensure that the ALI databases dynamically retrieve updated wireless/VoIP location information directly from the MSC/GMLC/VPC provider and are not ALI steered. AT&T will continue to support and leverage the FOC-R record exchange and steering process for all wireline records. FOC-R steering allows for other ALI providers to provision routing records through the AT&T DBMS system for validation and posting to both the AT&T IP selective routing database and to the AT&T ALI system to support steering. Similarly, AT&T's DBMS system generates FOC-R records for regions managed by other ALI database provider(s) to support ALI-to-ALI steering between neighboring PSAPs.

Please see the appended documents for further clarification, "E911 Local Exchange Carrier CLEC," and "E911 Local Exchange Carrier ILEC." **3.2 INTERSTATE INTERCONNECTION REQUIREMENTS**

**Commented [TMA32]:** Sonya, please ensure these attachments are included in the proposal response.

Respondents must be capable of interconnecting with other SSPs in states other than Alabama. States that will need to be interconnected to ANGEN include:

- Florida
- Georgia
- Mississippi
- Tennessee

Respondents shall provide the Board with example agreements, relationships, licenses or other documents demonstrating Respondents legal ability to enter into such agreements in other states.

Respondents must provide an explanation of how these interstate and intrastate capabilities will be achieved.

**AT&T Response:**

Comply.

AT&T is currently providing 911 Services throughout the state and in several other states across the USA. We have the appropriate agreements, relationships, licenses, and interconnections agreements necessary to provide 911 services statewide.

The AT&T ESInet solution is capable of interconnecting to other national and/or state-level ESInets via open, standards based interfaces. Additionally, AT&T has the capability to transfer and/or receive calls via legacy means through the LSRG provided as part of this solution. Legacy TDM connectivity is established using industry normal practices. ESInet interconnection Specifications are available at the State's request.

Please see the appended documents for further clarification, "E911 Local Exchange Carrier CLEC," and "E911 Local Exchange Carrier ILEC."

**3.3 TEXT TO 9-1-1 REQUIREMENTS**

The intent of this section is to specify a Text solution that is in compliance with the Alliance for Telecommunications Industry Solutions (ATIS) / Telecommunication Industry Association (TIA) J-STD-110, *Joint ATIS/TIA Native SMS to 9-1-1 Requirements & Architecture Specification A* J-STD-110 Standard.

The Board is looking for Respondents to provide a hosted solution for the processing of text-to-9-1-1 messages on Respondent's proposed ESInet.

The Board is seeking a text to 9-1-1 emergency telecommunications system that shall possess the highest degree of resiliency, reliability, redundancy, and service availability and conforms to current and evolving industry standard.

The system shall support the delivery of 9-1-1 text calls to all participating PSAPs located throughout Alabama.

Functionally the Board's desire is to have emergency text messages (text-to-9-1-1) from all wireless carriers aggregated from Respondents' proposed solution and forwarded to the appropriate PSAP. A TCC function for all of Alabama.

Conceptually the solution will allow a subscriber to a wireless service in the U.S. to send an emergency text to 9-1-1 while in the confines of the State of Alabama and that emergency text will be sent to the appropriate PSAP for answering and processing.

Respondents proposed solution(s) shall aggregate incoming Short Message Service (SMS) text messages from the public through one interface to all Text Control Centers (TCCs) provided by wireless carriers/vendors and distribute the text message to the appropriate Public Safety Answering Point (PSAP) in the format required by that PSAP (web browser, TTY, Direct IP interface).

Respondents proposed solution(s) shall minimize interconnection points between Respondents proposed solution and the PSAP by providing a single content distribution node from the aggregator solution to the PSAP interface.

Such an interface node shall be compatible with all NENA i3 CPE, TTY, and Web-based text displays.

Respondents proposed solution(s) shall only require that a person requiring emergency assistance enter the short code '9 1 1' in their wireless device in order to have an emergency text message sent to the PSAP.

The use of any other short code to send emergency text messages is not required nor shall there be any need for a public person to register their device in order to text 9-1-1 within the defined jurisdiction.

Respondents proposed solution(s), through a distribution method, shall allow messages to be transferred between PSAPs (primary and secondary) that use a web-based browser or NENA i3 CPE interfaces.

Respondents proposed solution(s) shall provide through the distribution method the ability to provide TTY transfer of SMS texts between TTY PSAPs on the same selective router.

Respondents proposed solution(s) should provide an Aggregator function that:

- Will aggregate text-to-9-1-1 messages from multiple TCCs into a single message stream for distribution to the PSAPs

- Supports any ATIS compliant text-enabled CPE interface
- Supports transfer of text sessions between different interfaces

Respondents proposed solution(s) should provide a Distributor function that:

- Receives text-to-9-1-1 messages from the Aggregator and uses the ESRP/ECRF to route the message to the destination PSAP for the PSAPs served by the Distribution server.
- The Distributor includes:
  - TTY Interface – to handle conversion of a text message to a TTY stream for interfacing to a selective router through an Emergency Services Gateway (ESGW)
  - Web Portal – contains a portal for the web-based Respondents solution for use by the call taker
  - SIP/MSRP Interface – interface between the Aggregator and the NENA i3 ESInets or MSRP CPE at the PSAP.

#### AT&T Response:

Comply.

AT&T will provide a fully managed J-STD-110 compliant solution offering emergency delivery of SMS via three optional interfaces. The AT&T managed TCC will have interconnections to all current TCC providers and their respective customers. Emergency text messages initiated from all Carriers within the PSAP jurisdiction, will be aggregated at the AT&T managed TCC and routed to the PSAP using Request Initiator (RI) cell sector location. The call takers may then engage in a text dialogue with the RI to establish the nature of the emergency and dispatch accordingly. This text conversation will occur over a PSAP-chosen deployment technology. The solutions available include:

- 1.) **Text Over TTY** – The Text will be converted to Baudot by the AT&T managed TCC. This TTY call will then be sent into the AT&T ESInet and handed off to the PSAP CPE from the Legacy PSAP Gateway (LPG). The PSAP CPE needs to support TTY in order to have a text conversation through this method.
- 2.) **Web Browser** – The Web Browser provides a GUI interface which allows the end PSAP user to communicate with the text initiator over the public internet. Since this workstation is connected to the public internet, it is typically a standalone workstation and uses the “swivel chair approach”.
- 3.) **MSRP** – AT&T will establish redundant connections between the AT&T managed TCC and the AT&T ESInet. When a text is initiated, the text will traverse the ESInet infrastructure. The ESRP/ECRF will be used to determine and route any text traffic. All PRF rules will be applied when routing to the PSAP. The message will traverse the established ESInet redundant paths and be handed off to the Terminating ESRP/CPE. It will be the PSAPs responsibility to procure a solution with their CPE vendor. Protocol specifications can be provided upon request.

Commented [TMA33]: Merged West Final Updates 2/29/16.

### Service Description

The AT&T ESInet Text to 9-1-1 service enables a PSAP to receive an emergency SMS Request for Assistance via an SMS text message to the short code 9-1-1. The service provides a messaging gateway, routing services, and a communications interface with the PSAP for emergency service requests sent via SMS text messages to 9-1-1.

AT&T ESInet is able to simultaneously process, route, and track emergency text dialogues for multiple end user customers. Upon receipt of a new SMS message, the TCC requests the cell sector location of the RI. The AT&T ESInet routes the text message to the PSAP based on the location information provided by the wireless carrier. A session is established between the Text Control Center (TCC) and the PSAP. An available call taker uses their user interface to answer the session and to send and receive text messages with the RI. The call taker releases the session when the PSAP call taker determines that the text dialogue is complete.

The Service includes the following elements:

- Interconnection with SMS networks for routing text messages sent to 9-1-1
- The ability to transfer a text session to another PSAP on the network
- Geographically redundant Text Control Center (TCC) systems offering high availability text gateway services
- SIP-based communication protocol based on ATIS J-STD-110 MSRP protocol
- Ability to display RI cell sector location and Carrier Identifier as an in-band message
- Redundant, secure IP connectivity between the end user PSAP and AT&T ESInet
- Log retention of text dialogues
- Implementation services, training, and customer technical support

Only text messages where the RI location appears to fall within the end user's PSAP boundaries will be routed into the PSAP message queue. Text messages which do not fall within an end user's PSAP boundary will not be routed, and a text response will be sent stating that text to 9-1-1 is not supported and the RI should place a voice call to 9-1-1.

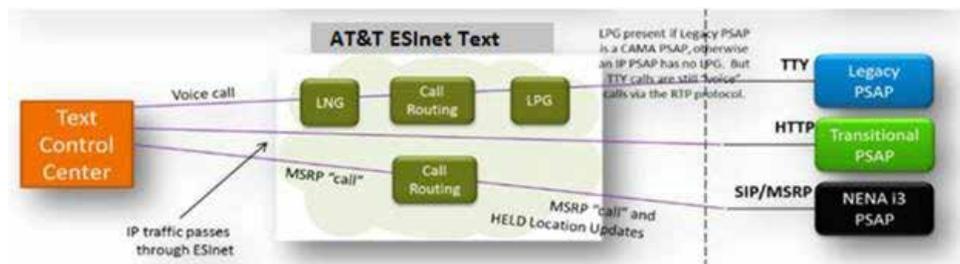


Figure 14: AT&T ESInet Text to 9-1-1 High Level Diagram

### Sample Message Flow

1. A RI sends a text message to 9-1-1.
2. The text request is routed through the wireless carrier's network to the TCC.
3. TCC determines location of the RI via a Mobile Location Protocol (MLP).
4. TCC determines the ESInet by using the cell sector or caller's latitude and longitude and sends the call to the AT&T ESInet or PSAP Web Browser interface.
5. If using a TTY or Integrated solution, the AT&T ESInet determines PSAP by querying the ECRF. The AT&T ESInet sends the text to the PSAP.

#### 3.3.1 DATA COLLECTION AND REPORTING

The proposed solution shall supply call detail record (CDR) or an equivalent for all text messages. The solution shall provide QoS information, per NENA i3 standards, for each text 'call' to ensure that SLAs are being met.

Quality of service information should be accessible through Respondents' maintenance function.

Respondents shall provide diagrams for their proposed solution showing:

- System connectivity
- System NG9-1-1 functionality including connectivity to network
- Intelligent workstation equipment

#### AT&T Response:

Comply:

Within the AT&T ESInet environment, QoS is configured for various types of traffic. Once established, the QoS remains unchanged. Therefore each category of traffic type will remain the same classification throughout the life of the solution – unless a specific change is requested by the customer. With that methodology in mind, a static status of the QoS is not provided in the current reports. The AT&T solution logs hundreds of data points for each call that traverses the system to assist in tracking and troubleshooting calls. The Customer Management Portal (CMP) provides participating PSAPs and approved personnel 24x7x365 access to call detail records through a secure, web-based portal. The call detail records provide the user with all of the pertinent information for each call.

AT&T's standard reporting suite provides the following reports through a web-based interface.

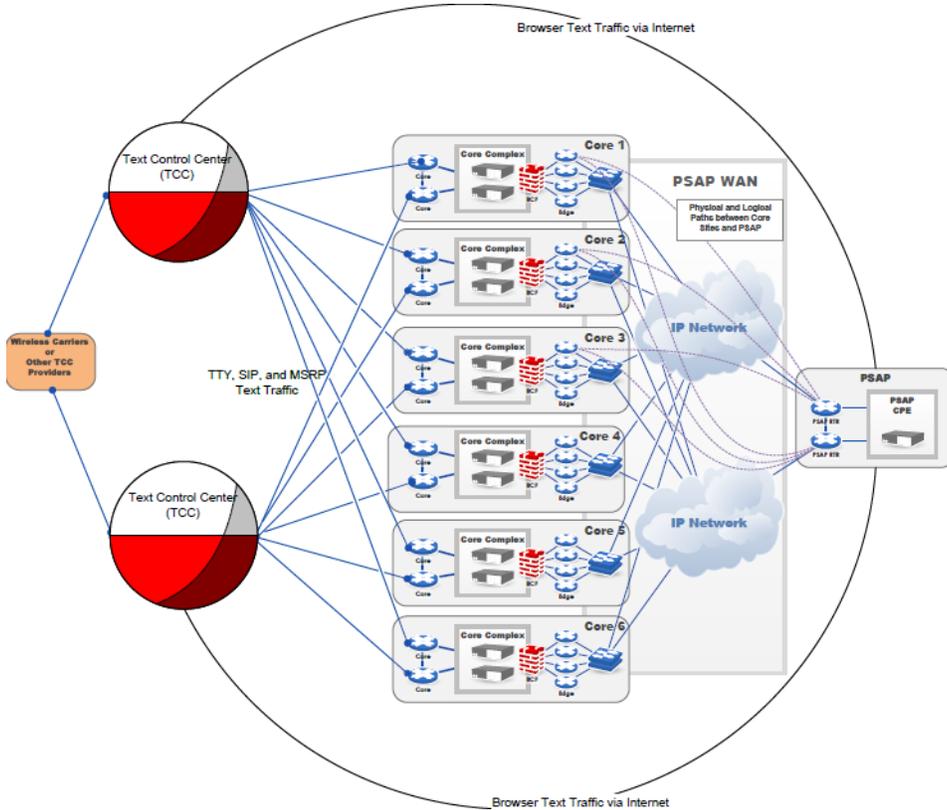
- **Event Count Reports per Hour**– provides metrics for total calls by hour for a day, week or month.

Commented [TMA34]: Merged West final updates 2/29/16

Commented [r35]: AT&T to confirm they want to offer this

- **Event Count by Routing Reason and Destination** – Provides metrics for total calls in which the Customer PSAP participated as the Primary versus Alternate route per route type, broken out by hour for day, week, or month.
- **Event Count by Type** – Provides metrics for total calls by call type (wireless, wireline, VoIP) broken out by hour for day, week, or month.
- **Event Count by Incoming Trunk Group** – Provides metrics for total calls by trunk group with an hourly breakout.
- **Bridge Call Summary** – Provides metrics for calls bridged in or out by bridge type (fixed, selective, manual). Call detail is available for each bridged call.
- **Routing Database Processing** – provides a breakout of initial calls where the Customer PSAP was Primary by selectively routed versus default routed with a No Record Found (NRF) breakout.
- **Event Setup Time** – provides statistics on the time to route and deliver calls where the Customer PSAP is Primary, including the minimum, maximum, median and average times
- **Event Count Reports per Hour**– provides metrics for total calls in which Customer’s PSAP participated by hour for a day, week or month

Users will have a predetermined PSAP or set of PSAPs, for which they are able to view statistics. For example, some users will only be able to view their own PSAP’s statistics, while another user may be provided authorization to view all PSAPs in a county, region, state, or other appropriate grouping.



AT&T will not be providing workstations as part of this RFP response. Standard Internet browsers are acceptable applications for the display and use of the web browser text solution provided by AT&T. The workstation specifications for the web solution are up to the individual PSAP and their specific needs for that workstation. For the TTY and MSRP integrated solutions, the state should contact their CPE vendors for more information.

### 3.3.2 PSAP GRAPHICAL USER INTERFACE AND TEXT STATUS WINDOWS (BROWSER METHOD)

Respondents shall include a user interface provided for a web browser that allows a supervisor the ability to modify the system sounds and button icons.

The User interface proposed by Respondents solution must utilize Windows Graphical User Interface (GUI) interfaces using drop-down boxes, check boxes, text boxes, radio buttons. Etc. to facilitate user friendly data entry and editing.

The Intelligent Workstation shall present the text-call-taker, at a minimum, with the status of the following categories:

- Number of Active Text-to-9-1-1 Calls
- Number of Text-to-9-1-1 Calls on Hold
- Number of Text-to-9-1-1 Calls 'Ringing'
- Number of Active Text-to-9-1-1 Call takers.

**AT&T Response:**

Comply. With the Web Viewer the number of active calls that can be handled at the PSAP is unlimited. There is no Hold functionality for a text in the Web Viewer. The number of calls ringing and active is also unlimited.

## SECTION 4 ANGEN i3/NG CORE SERVICES REQUIREMENTS

### 4.1 NENA I3 NG CORE FUNCTIONAL REQUIREMENTS

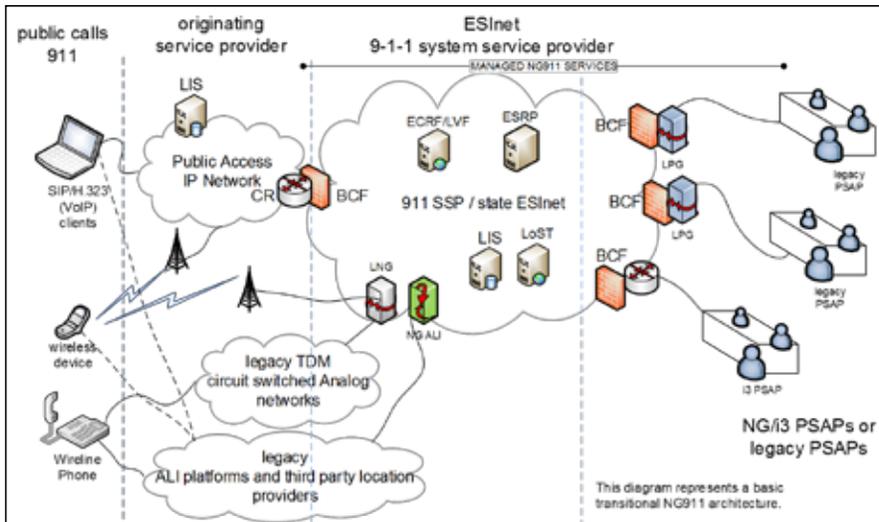


Figure 11 - ANGEN Conceptual Design Diagram

The proposed system shall be designed to meet and expand the current capabilities of the ANGEN system and be scalable and adaptable to accept new payloads (such as Text, Pictures and Video) that may be directed by the Board for deployment during the term of the contract.

ANGEN is currently configured as a wireless carrier aggregation point, which is interconnected to every S/R in Alabama, which then serve and deliver wireless 9-1-1 calls to the PSAPs in AL.

The proposed system is required to provide or accommodate NG9-1-1 core functional elements as well as legacy transitional elements for the continued and future operation of ANGEN.

Those NG9-1-1 core functional and legacy transitional elements include:

- Border control function (BCF)
- Emergency call routing function (ECRF)
- Emergency services routing proxy (ESRP)
- Legacy network gateway (LNG)
- Legacy PSAP gateway (LPG)
- Legacy Selective Router Gateway (LSRG)
- Location Validation Function (LVF)
- Policy routing function (PRF)

Respondents shall explain where these functional components are physically located in their proposed solution and describe how they will operate.

It is recognized that all of the functions may not be required at this time and that some may only be added after transition or at some future point as technologies or standards evolve.

Suggested components that are not used or are not needed in the Respondents proposed solution must be clearly noted as an exception; and an explanation must be given for eliminating the particular component to perform the ANGEN capability.

**AT&T Response:**

Comply.

**4.2 BORDER CONTROL FUNCTION (BCF)**

Per the NENA i3 NG9-1-1 specification, the network must be configured with a Border Control Function (BCF) at all ingress and egress points.

The BCF shall support a variety of direct IP interconnection arrangements between the ESInet and external IP networks depending on the level of mutual trust that exists between the respective networks.

It is strongly recommended that BCF's are located at a minimum of two geographically diverse points of interconnection (POI), and support 99.999% availability interconnections to external networks.

Respondents shall explain the features and capabilities of their proposed BCF, along with a brief explanation of how high availability will be achieved.

**AT&T Response:**

BCFs are included in the solution and interfaces to external components traversing through redundant BCF components. Each of the six AT&T Core sites will have redundant BCFs. The redundant BCF components are off-the-shelf, market leading products that provide high reliability and high availability. The BCFs work so that only authorized traffic to authorized end points and predetermined protocols interact with service-critical components. The BCF does not impact compliance to the SIP or RTP standards. No impact to system extensibility is introduced by the BCF. The redundant BCF design and the overall 6-Core architecture of the AT&T ESInet solution allows for availability to meet or exceed 99.999%.

The core functionality provided by the BCF under this proposed solution is in alignment with the requirements of the NENA i3 document 08-003. Highlights of the key functions provided are:

- Border Firewall
- Session Border Control functions

- [Media Anchoring](#)
- [Stateful Firewall](#)
- [XML Gateway \(Authentication and Authorization of XML transactions to the LIS, ADR, and ECRF in lieu of establishment of the PSAP Credentialing Agency \(PCA\) as described in NENA STA-010.2.](#)

#### 4.3 EMERGENCY CALL ROUTING FUNCTION (ECRF)

Respondents shall include an emergency call routing function (ECRF) in their proposed solution that utilizes geographic location information to route emergency calls to the appropriate PSAP.

The ECRF shall be designed according to NENA08-003 standards and be implemented using diverse, reliable and secure IP connections.

Respondents shall supply an ECRF function that meets a minimum of 99.999% availability

Respondents providing an ECRF must ensure that it is accessible from outside the ESInet and that the ECRF permits querying by an IP client/endpoint, a Legacy Network Gateway (LNG), an Emergency Services Routing Proxy (ESRP) in a next generation Emergency Services network, or by some combination of these functions.

An ECRF accessible inside an ESInet must permit querying from any entity inside the ESInet. ECRFs provided by other entities may have their own policies on who may query them.

An origination network may use an ECRF, or a similar function within its own network, to determine an appropriate route, equivalent to what would be determined by the authoritative ECRF, to the correct ESInet for the emergency call. Respondents shall describe the functionality of such an ECRF equivalent and document where this functional element resides within their proposed solution.

The ECRF shall support a routing query interface that can be used by an endpoint, ESRP, or PSAP to request location-based routing information from the ECRF. Additionally, it must support both iterative and recursive queries to external ECRF sources.

The ECRF must interface with the Location to Service Translation (LoST) protocol (RFC5222) and support LoST queries via the ESRP, PSAP customer premises equipment (CPE), or any other permitted IP host.

The proposed ECRF must allow for rate limiting queries from sources other than the proposed ESRP(s), and provide logging of all connections, connection attempts, and LoST transactions.

The ECRF must be designed and implemented to support the ability for GIS data management functions to ensure accurate location data is maintained.

The ECRF must support:

- Location error correction.
- Routing of calls based on geographical coordinates and civic addresses.
- Utilize common GIS boundaries (to include but not limited to Municipal, Police, Fire, EMS).
- Permit LoST association with each layer.
- Comply with NENA 02-010 and NENA 02-014.
- Must support dynamic updates to GIS without disruption of the ECRF.
- Validation of GIS updates before they are applied.

GIS is handled locally throughout the State of Alabama. Respondents shall define their method for collecting local PSAP related GIS information and establishing the ECRF.

Respondents shall explain where the ECRF will be located and how it will operate within their proposed solution.

Respondents shall describe how the proposed ECRF and its capabilities, features, functions and protocols provides high reliability routing for all 9-1-1 call types.

Respondents shall describe the interface to the system that provides the ability to upload location information once the Extensible Markup Language (XML) is published and approved for general use, as determined by the Board.

#### AT&T Response:

The AT&T ESInet ECRF provides full i3 compliancy and contains the geographic boundaries provided by the State for 9-1-1 call routing and responder determination. The ECRF LoST protocol interface meets RFC5222 and NENA STA-010.2 draft (formerly NENA 08-003) requirements. Where applicable, the ECRF also meets NENA 01-014 and NENA 01-010, though there are transitional considerations and conflicts between these documents and NENA STA-010.2 and the draft NG9-1-1 GIS Data Model. There are also different considerations associated with transitional i3 deployments within NENA STA-010.2. AT&T will work with the state to establish a consistent means to handle the transitional it deployment until such time that legacy data stores are no longer required and carriers within the state are compliant with the NENA i3 standards. Note that the NG9-1-1 Data Model document is still in draft form. That said, it will take precedence over older NENA documents describing GIS data models. The ECRF has been supporting production Next Generation 9-1-1 call routing solutions since 2009, and the technology Core has been supporting wireless and VoIP 9-1-1 call routing since 2003. The ECRF LoST interface was tested during the NENA Industry Collaboration Event (ICE 4).

The Emergency Call Routing Function (ECRF) supports i3 GIS-based routing, responder determination and the return of location ADR URIs per IETF 5222. The ECRF provides the capability to determine the destination PSAP based on either civic or geodetic location elements within the PIDF-LO. The ECRF also provides a LoST interface to the PSAP for emergency responder determination. <findService>, <listServices> and <listServicesByLocation> are all supported LoST query types.

The ECRF and LVF are implemented independently even though they provide similar functions, due to the provisioning nature of the LVF function and the real-time call processing nature of the ECRF. This architecture ensures that Location Validation Function does not interfere with the critical call routing functions provided by the ECRF.

Any updates to the GIS data within the ECRF, whether to correct errors within the current data set or enhance it for any other reason, will be uploaded through the AT&T Spatial Interface (SI, formerly known as a SIF).

The State's GIS updates are provisioned through the Spatial Interface (SI) which performs GIS validations, including validations to ensure routing integrity. The QA/QC processes provided during validation steps in the SI will prevent any unwanted gaps or overlaps from being provisioned in the ECRF. A change control system is established to monitor and manage data discrepancies and to track data change requirements. Validated GIS updates are normalized and applied to the ECRF production instances in a manner that preserves availability and coordinates with other ESInet scheduled updates and activities. Each ECRF element maintains two copies of each map layer, an active one that processes the LoST queries and an inactive one. New updates are applied to the inactive directory. Once processing is complete for all ECRF computing elements (two per geographically diverse location), the ECRF system will notify the Spatial Interface that the load was successful and make the inactive map layer active. If for some reason the load was unsuccessful, the ECRF system will pass that result along to the Spatial Interface which will send out alarm notifications. If this occurs the previously active map layer will remain active. It is recommended that new updates not be sent until the notification has been received from the Spatial Interface that the previous update has finished processing. This timing can vary greatly depending on the feature sets updated and the number of changes within the feature sets.

A change control model is implemented to track changes between the GIS provisioning platform and the production ECRF instances.

All validation and alarming functions associated with an ECRF are handled on servers independent of those supporting the call-time ECRF functions to ensure that these "provisioning" functions do not interfere with the critical call path functions of the ECRF.

### **GIS Data**

The ECRF also supports additional and/or alternate service layers that when combined with the PRF, provide advanced call routing functions beyond what the NENA specifications require. Interface with the ECRF is via an i3-compliant LoST protocol interface. The ESRP queries the ECRF via the LoST protocol to obtain the destination URI for the call. Using the destination URI, the ESRP interfaces with the policy store to identify the applicable routing policy. For geospatial routing policies other than an Emergency Override policy, the ESRP re-queries the ECRF via LoST to obtain the routing destination for alternate service types – e.g., abandonment or diversion requested routing.

The ECRF supports multiple GIS and service type layers which are leveraged to support geospatial queries via the LoST protocol. In addition to the State's GIS street centerline and point data provisioned via the Spatial Interface (SI, formerly known as "SIF"), the ECRF supports provisioning of multiple service types including:

- **Standard Routing** – The standard (active) i3 routing boundary for each PSAP and the corresponding URI are pre-provisioned via the SI and retrieved by the ESRP for use in determining the applicable routing policy
- **Abandonment, Overflow, and Diversion Routing** – In addition to standard active i3 routing, the ECRF allows geospatial boundaries to be provisioned for multiple routing service types to support abandonment (diverted), overflow, and diversion (alternate) routing policies. Provisioning via the ECRF ensures that alternate policy routing is based on fully-validated GIS boundaries. Utilization of any of these special routing layers is controlled via the PRF.
- **Emergency and Additional Services** – The ECRF supports provisioning of separate boundary layers for first responder service types including police, fire and emergency medical services.

### Methodology

For expediency during call processing, the geodetic location is utilized by the ESRP for routing determination of using a point-in-polygon lookup. Routing and other services can also be determined based on civic address when geodetic locations are unavailable.

The GIS data layer(s) that are used to identify the PSAP, emergency, and additional service types are configured on a per-service basis, e.g., urn:service:sos. If a LoST query contains geodetic location, the geodetic location is used to directly query the PSAP boundary layer to identify the target PSAP. The GIS dataset that is queried is based on the service URN of the query.

Where possible, it is recommended that static locations provisioned to the LIS contain a Location Validated civic element as well as the supplied or derived latitude and longitude associated with the civic address. When a geodetic location element (latitude and longitude) is included in the PIDF-LO, the ESRP uses the latitude and longitude as the preferred location element to send to the ECRF to determine the appropriate PSAP for routing as this is the fastest and most reliable location element to route from. The ECRF does a point-in-polygon lookup to return the appropriate URI for the PSAP associated with the polygon the latitude and longitude falls within. When there is only a civic location element available in the PIDF-LO, the ECRF will follow the LoST protocol to locate a matching address point feature or, if one cannot be determined from the address point layer, the ECRF will attempt to locate a matching Road Centerline feature. If either is located, the ECRF will return the URI associated with the URN also specified in the LoST request.

Polygon sets for each service URN the State would like to support must be included for SI validation and implementation in the ECRF.

The ECRF supports provisioning of separate boundary layers for first responder service types for police, fire, and emergency medical services, as long as the polygon datasets are provided with the GIS data. The PSAP may query the ECRF for additional service URNs associated with the location.

The PSAP may also query the ECRF for the URI associated with an Additional Data Repository (ADR), specific to the civic location provided in the LoST request. If that information is provisioned with the State's Address Point data, the ADR URI will be returned.

Additionally, if the ECRF receives a request for a location outside its coverage area, it will send an iterative query to the National Forest Guide, once available. Absent the National Forest Guide, the ECRF has the capability of storing coverage areas for other ECRFs. When a request for a location that falls outside of its own coverage area is received, the ECRF will check to see if the location falls within another known coverage area and send a recursive query to that ECRF and per RFC 5222, pass that response along to the requesting system.

#### **Architecture and Availability**

The AT&T ESInet ECRFs exist within a highly available and geographically distributed application processing environment. A single hardware component failure at one of the application processing complexes will not interrupt processing of the ECRF. A single geographic site failure (either the communication to the site or elimination of the site itself) will not prevent further call processing from occurring. High availability is achieved through high availability software design, redundant ECRF instances, and transactions using dynamic client/server connections with multiple ECRF serving entities.

The geographically diverse ECRFs utilize redundant data stores to support high availability. These systems are monitored 24x7x365 by the Network Operating Center (NOC) and supported through our Incident Command System. All transactions are logged. Errors are logged for reporting and analysis and directed to the NOC when immediate action is required. Additionally, transaction and error information is available to the customer on a daily basis through the management and reporting suite.

In compliance with NENA i3 specifications, the ECRF supports the LoST protocol as defined in RFC 5222, with receipt of civic addresses, geo-coordinates, or both location elements as input.

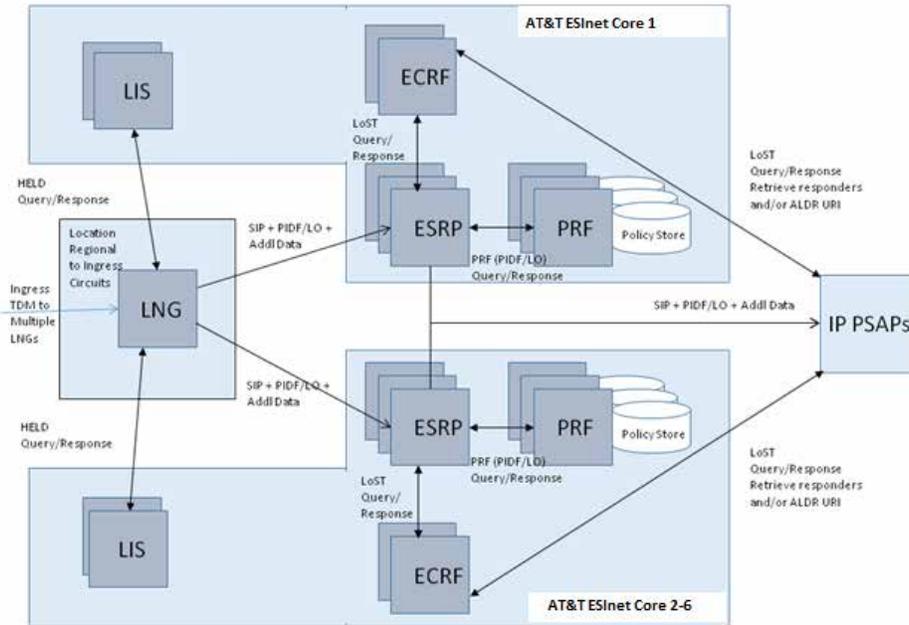


Figure 12: ECRF

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#### 4.4 EMERGENCY SERVICES ROUTING PROXY (ESRP)

The proposed solution must include an emergency service routing proxy for call delivery to the appropriate PSAP based upon location and routing rules.

Respondents shall explain where the ESRP will be located and how it will operate within their proposed solution.

This includes Carrier to ESRP, ESRP to ERSP and ESRP to call-taker routing.

Respondents shall configure the ESRP according to NENA 08-003 specifications and describe the ability of the ESRP to route SIP messages to a call taker.

Respondents shall explain how the ESRP interfaces to the ECRF and to the PRF to ensure that routing instructions, routing policies and possible event notifications that alter call routing scenarios are acknowledged.

Per NENA 08-003 for typical 9-1-1 calls received by an ESRP it;

1. Evaluates a policy “rule set” for the queue the call arrives on
2. Queries the location-based routing function (ECRF) with the location included with the call to determine the "normal" next hop (smaller political or network subdivision, PSAP or call taker group) URI.
3. Evaluate a policy rule set for that URI using other inputs available to it such as headers in the SIP message, time of day, PSAP state, etc.

The result of the policy rule evaluation is a Uniform Resource Identifier (URI). The ESRP forwards the call to the URI.

The ESRP shall support SIP SUBSCRIBE/NOTIFY in order to understand the status of both upstream and downstream elements.

Respondents shall describe their proposed ESRP solution.

#### AT&T Response:

Comply. AT&T’s Emergency Service Routing Proxy (ESRP) provides i3 compliant routing functionality including full integration with geographically determined routing policies, carrier grade voice quality, and demonstrated reliability.

The ESRP processes ingress calls received using Session Initiation Protocol (SIP) signaling with location embedded in the PIDF-LO from i3 compliant carrier networks, from legacy carriers or selective routers via the LNG/LSRG or from an upstream i3 ESRP and routes calls to the appropriate terminating ESRP (PSAP) according to the caller’s location and the PSAP-configured routing policy.

When the ESRP receives an ingress call, it evaluates the SIP INVITE geolocation header within the PIDF-LO. If the geolocation header contains location by reference, the ESRP queries the LIS via the HELD interface to dereference the location and obtain a routable location geodetic or civic location value. The ESRP then queries the ECRF via the LoST protocol with the caller’s geodetic or civic address location to identify the destination URI for the call.

#### Policy Route Determination

Using the location-determined URI retrieved from the ECRF via the LoST protocol, the ESRP interacts with the Policy Routing Function to determine call routing. The features of the AT&T ESNet allow PSAPs to determine and modify routing policies via a web interface.

The public safety grade ESNet allows PSAPs to:

- **Define Multiple Policy Layers:** Independently configure standard, abandonment (disabled), and diversion-requested routing policies.
- **Route Geospatially or as Defined:** Define each policy geospatially, route according to a defined hierarchy, or load balanced (volume distribution) between neighboring PSAPs.

- **Configure by Time of Day:** Routing policies can be configured to apply for a particular one-time or recurring time window.

Additionally the ESRP provides PSAPs with peace of mind by supporting multiple default routing fallback options until carriers transition to i3-compliant call delivery. Fallback to legacy ESN or No Record Found routing is supported to ensure every call is routed as accurately as possible even if VoIP or wireless carriers do not deliver or pre-provision routable location values or if carrier-provisioned records are error treated. If the ESRP has to utilize the fallback ESN or NRF routing scheme, it will continue to deliver the call and location information. This innovative solution provides extreme reliability for the routing of calls.

The ESRP supports an option to configure PSAP routing by call type, supporting areas where wireless calls are routed to a different PSAP than would be otherwise determined by PSAP geographical boundaries, such as the State Patrol.

Policy route determination includes evaluation of the PSAP-configured routing policy, the time of day, the caller's location (for geospatially determined alternate routing policies), the PSAP operational state, and the ring-no-answer timer configuration. Emergency override policies supersede pre-provisioned policies when the call falls within the PSAP-defined routing polygon. This valuable solution allows PSAPs to immediately implement emergency routing policies during emergent events which require immediate routing rules to send calls to supporting agencies.

The i3 SIP INVITE delivered to the PSAP (terminating ESRP) includes both geodetic/civic location and additional data conveyed by value and/or reference from the LIS and CIDB responses.

In addition to call delivery to i3-compliant PSAPs, the ESRP supports call delivery to legacy PSAPs. A sub-set of i3 routing policies can be provisioned for legacy PSAPs along with a 10-digit telephone number for delivery.

The diagram below illustrates the ESRP/PRF functional components and the interfaces with other AT&T i3 solution elements.

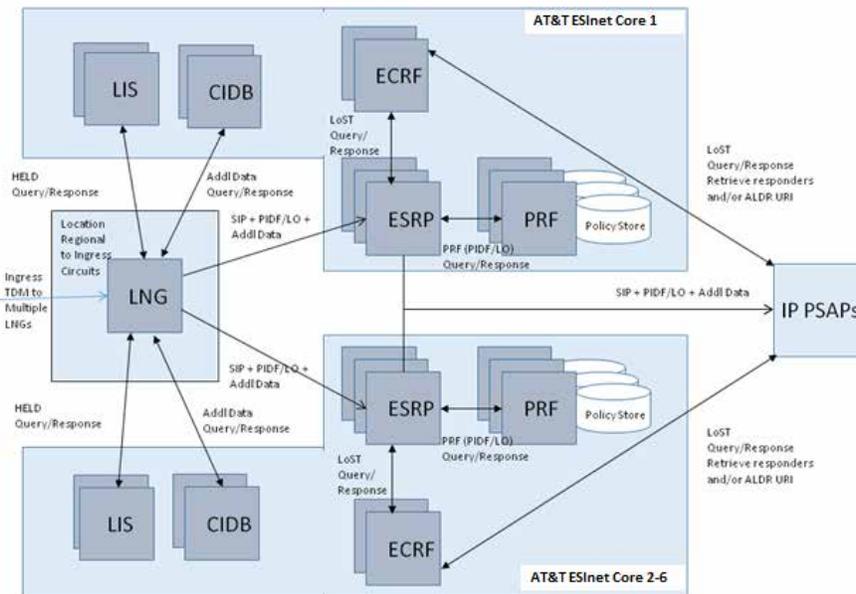


Figure 15: ESRP/PRF Diagram

### i3 Bridging/Transfers

The ESRP supports N-way bridging and call transfers using i3 SIP REFER and subscribe/notify messaging. i3 PSAPs can transfer calls to both i3 and non-i3 PSAPs. Subscribe/notify messaging allows the PSAP or secondary PSAP to take control over the call bridge once the call has been transferred.

The ECRF and ESRP components are designed to handle significantly more traffic than historically processed by the State and the solution's redundant and geographically distributed architecture provides a high availability application environment.

### Architecture and Availability

The AT&T ESInet solution provides the ability to interoperate NG9-1-1 systems in various configurations including the hierarchical network-of-networks model. The 9-1-1 technical architecture accommodates interacting ESRPs and ECRFs via the associated SIP and LoST protocols, respectively. Within the ESInet, the ESRP is interconnected with the LIS and ECRF systems. Interconnection with the PSAPs is via the Border Control Function.

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ESRP high availability is achieved through an application processing complex consisting of multiple application servers, each of which operates independently of the others so that a single application processor failure does not disrupt the processing of the complex. There are two application processing complexes that operate independently of each other and are geographically distributed. Each component at an application processing complex has redundancy and high availability within its own domain. The ESRP application is highly redundant within each of the geographically separate sites. There are multiple computers running the ESRP application and the failure of any one or two of those computers do not affect calls in progress. Failure of a data center results in all future calls being processed by another geographically diverse data center and will still provide the total required call processing capacity requirement.

#### 4.4.1 POLICY ROUTING FUNCTION (PRF)

The Policy Routing Function (PRF) is the primary routing component of the ESRP. The ESRP uses defined routing policies within the ESInet and the NENA i3 network to deliver calls to the call-takers.

The PRF function requires the ability of the ESRP to assist in dynamically routing and re-routing calls based upon other rules beyond normal operation.

Respondents shall describe how they will operate the PRF functionality and explain how they will implement a proxy that is customizable based upon rules set by threshold or by manual intervention.

Additionally, Respondents shall describe what user interface will be used to modify policy rules and what i3 functions can affect policy changes for call routing.

#### AT&T Response:

Comply.

The AT&T i3 policy routing will provide the State's PSAPs with extensive flexibility to define and update standard and alternate routing policies. PSAPs can dynamically modify routing policies, set priorities, and modify their operational state through a web-based management portal. Routing policies can be defined as recurring or one-time. The rules-based routing proxy includes the following elements:

#### A repository of PSAP-defined routing policies.

**Customer Management Portal** – A feature-rich web tool that allows PSAPs to customize ESRP configurations, define and edit their routing policies, and modify their status (normal, abandoned, diverted). All routing policy changes are automatically verified for syntactical and logical accuracy prior to activation in production. Secure user access is provided via the AT&T portal.

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The following types of routing policies are supported:

- **Abandonment/Night Service Routing** – The abandonment policy is engaged whenever the terminating ESRP (PSAP) operational state is defined as 'Disabled'. The PSAP operational state may be modified by contacting the AT&T NOC triggered via a device installed at the PSAP, or modified online.
- **Overflow Routing** – The overflow routing policy is applied during overflow scenarios when a PSAP is receiving more calls than its occupied work stations can accommodate. Upon reaching the designated call capacity for the call type, cumulative calls, or if the target is unreachable, the ESRP engages the primary PSAP's overflow routing policy. Similarly, the alternating routing policy will be invoked if the terminating ESRP call handling system does not accept the SIP invite or for a ring-no-answer timeout.
- **Diversion Routing** – The diversion routing policy is applied whenever the PSAP opts to engage alternate diversion routing rules. The PSAP operational state may be modified to engage the diversion routing policy by contacting the AT&T NOC or online.
- **Special Event Routing** – Special event routing is a special type of diversion routing policy that is applied during a scheduled time window. If a PSAP jurisdiction contains venues that host events that may warrant dedicated call handling (mobile command center or dedicated resources at the PSAP), special event polygons can be pre-provisioned.

AT&T will provide a feature-rich management portal for the State and/or PSAPs to customize and maintain their policies. Policies have attributes such as active/inactive, one-time or recurring time window, priority, URI, or a set of URIs of the destination(s) to send the call to, and call distribution method as examples. These policies can be pre-provisioned or can be constructed in real time to handle incidents.

The AT&T ESInet will support a spatial interface for provisioning of the alternate polygon layers into the ECRF to be used in conjunction with policies in the PRF. Geospatial routing policies are applied in the PRF after all GIS validations have been completed and the data has been provisioned to the ECRF.

Abandonment, Overflow, and Diversion policies can be configured to use any of the following policies.

- **Geographically** – The system can be configured to send abandonment calls to different alternate PSAPs based on the geographic location of the calling party within the primary PSAP's jurisdiction. Geographic abandonment or alternate routing polygons can be pre-provisioned via the SI or submitted dynamically.
- **Hierarchically** – The system can be configured to cascade a call to up to nine consecutive, alternate PSAPs.
- **Load-balanced** – The system can be configured to distribute calls between PSAPs.

All policies loaded by the State are held in a test state (non-active) until the State confirms that all test calls using the policies perform as expected.

#### 4.5 LEGACY NETWORK GATEWAY (LNG)

The LNG logically resides between the originating network and the ESInet and allows i3 enabled PSAPs to receive emergency calls from legacy originating networks.

Calls originating in legacy wireline or wireless networks must undergo signaling interworking to convert the incoming Multi-Frequency (MF) or Signaling System Number 7 (SS7) signaling to the IP-based signaling supported by the ESInet.

Thus, the LNG supports a physical SS7 or MF interface on the side of the originating network, and an IP interface which produces SIP signaling towards the ESInet, and must provide the protocol interworking functionality from the SS7 or MF signaling that it receives from the legacy originating network to the SIP signaling used in the ESInet.

The LNG shall be implemented for routing emergency calls to the appropriate ESRP in the ESInet.

To support this routing, the LNG must apply specific interwork functionality to legacy emergency calls that will allow the information provided in the call setup signaling by the wireline switch or MSC (e.g., calling number/ANI, ESRK, cell site/sector represented by an ESRD) to be used as input to the retrieval of location information from an associated location server/database.

The LNG shall use this location information to query an ECRF and obtain routing information in the form of a URI.

The LNG must then forward the call/session request to an ESRP in the ESInet, using the URI provided by the ECRF, and include callback and location information in the outgoing signaling.

While in operation LNG shall be capable of appending supplemental and supportive call information such as location and callback number to the call prior to the ESInet.

The LNG shall also be capable of supporting SIP SUBSCRIBE/NOTIFY in order to understand any downstream elements status and then implement policy routing should a nominal route for a call not be available.

Respondents shall describe how their proposed solution permits a legacy network gateway (LNG) function to integrate the legacy network with the ANGEN core.

#### AT&T Response:

Comply. The Legacy Network Gateway (LNG) and Legacy Selective Router Gateway (LSRGW) functional capabilities are implemented through the Protocol Interworking Function (PIF), NG9-1-1-specific Interwork Function (NIF), and a Location Interwork Function (LIF). The AT&T ESInet PIF is provided via best-in-class media server devices from leading off-the-shelf vendors. The PIF

contains a highly available architecture within itself but is a physical termination of a TDM circuit and therefore does not lend itself to geographic redundancy. Availability and survivability is achieved by distributing the TDM circuits across multiple PIF elements such that the failure of one PIF will not impact all the circuits from a given originating end point. In the case of SS7, the PIF is separated into distinct elements that terminate the bearer trunks and signaling. The SS7 signaling elements are redundant and geographically distributed such that a single failure will not interrupt continued call processing. The PIF interconnects to the NIF via IP protocols including SIP.

The following diagram depicts the LNG configuration.

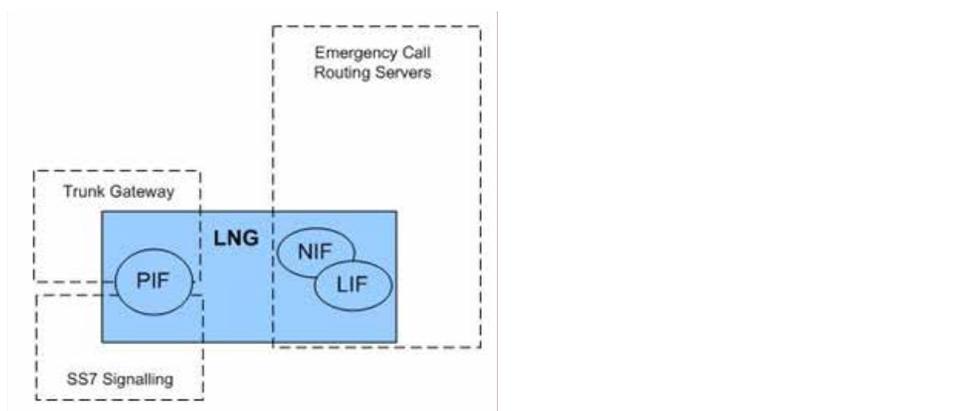


Figure 13: LNG Configuration

The AT&T ESInet LIF exists within a highly available and geographically distributed application processing environment. The LIF operates under the supervision of the NIF and controls the interface to the legacy ALI end-points.

The AT&T ESInet NIF exists within the same highly available and geographically distributed application processing environment as the LIF. A single hardware component failure at one of the application processing complexes will not interrupt processing of the LIF or NIF. A single geographic site failure (either the communication to the site or elimination of the site itself) will not prevent further call processing from occurring.

The AT&T ESInet provides multiple legacy network gateways (LNGs), direct SIP NNI and Points of interface (POIs) for the wireline, wireless, and VoIP telephone service providers (TSPs) to send their 9-1-1 call traffic destined for Alabama PSAPs. In the interest of redundancy and diversity, AT&T requires the TSPs to connect to at least two LNGs. Each LNG is built with redundant equipment and power for added solution stability. The LNGs convert the 9-1-1 call traffic from TDM to IP and then route the calls to one of AT&T's two Core routing sites. These

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Core routing elements determine the appropriate destination based on pre-provisioned routing tables.

The HELD interface into the AT&T ESInet Location Database (LDB) is leveraged by the LNG to retrieve PIDF-LO, either by value or reference, to be delivered to the PSAP within the SIP messaging. The HELD interface is also presented to the PSAP CPE to provide dereferencing services and/or provide location updates for wireless calls.

The AT&T ESInet Solution converts all incoming 9-1-1 calls to SIP in accordance with SIP requirements of NENA 08-003. Additionally, the solution supports both i3 SIP as identified in NENA standards 08-003, RFAI SIP as ATIS-compliant, and conversion to CAMA at the PSAP's location for PSAPs with CPE that is not yet SIP-compliant. In this way, the AT&T ESInet Solution provides full transition support from the PSAP's current state to full NENA i3 compliancy.

#### 4.6 LEGACY PSAP GATEWAY (LPG)

A legacy PSAP gateway (LPG) is used to provide seamless connection to PSAP's that have not upgraded to NG9-1-1 PSAP operations.

The Legacy PSAP Gateway is a signaling and media interconnection point between an ESInet and a legacy PSAP.

It plays a role in the delivery of emergency calls that traverse an i3 ESInet to get to a legacy PSAP, as well as in the transfer and alternate routing of emergency calls between legacy PSAPs and i3 PSAPs. The LPG shall support the LoST protocol in order to provide selective transfer information (minimally police, fire and EMS) to a legacy PSAP based on the routing polygons provided by the local ECRF.

The Legacy PSAP Gateway supports an IP (i.e., SIP) interface towards the ESInet on one side, and a traditional MF or Enhanced MF interface (comparable to the interface between a traditional Selective Router and a legacy PSAP) on the other.

The Legacy PSAP Gateway also includes an ALI interface (as defined in NENA 04-001 or NENA 04-005) which can accept an ALI query from the legacy PSAP.

The LPG must then respond with location information for a call that is formatted according to the ALI interface supported by the PSAP. Respondents shall describe their solution for the LPG to support the legacy PSAP environment.

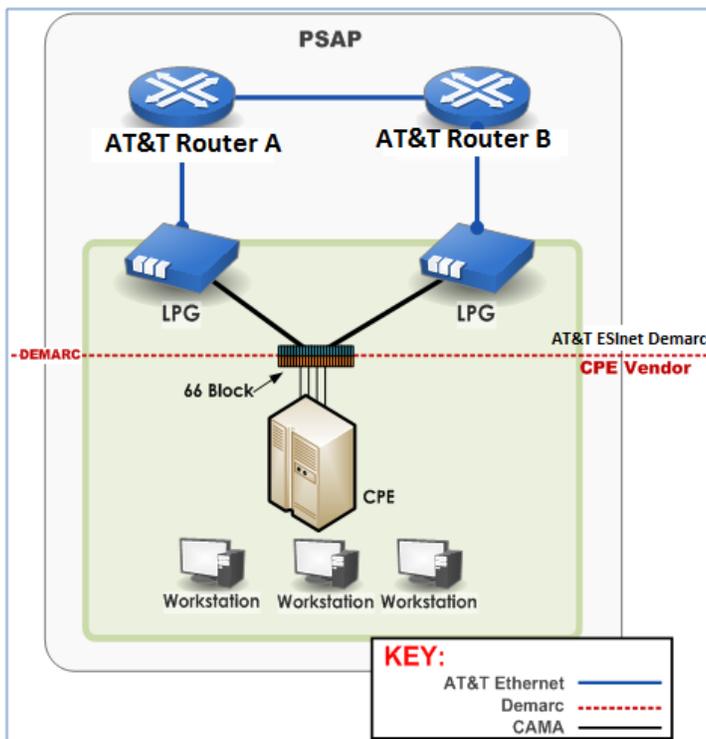
#### AT&T Response:

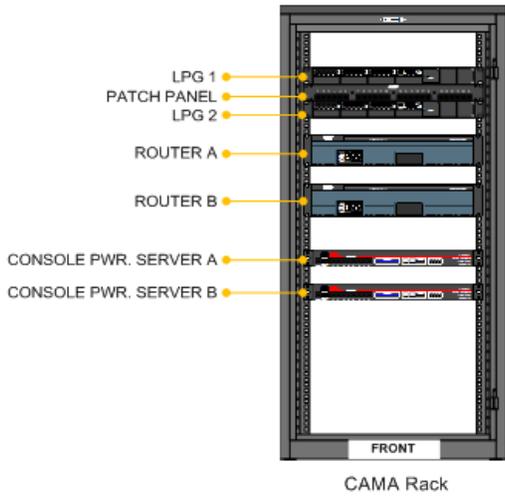
The Legacy PSAP Gateways (LPGs) for non-i3 compatible Call Handling subsystems reside at PSAPs that have not already converted to a SIP-based protocol.

Calls routed via the ESInet and delivered to a legacy PSAP will undergo signaling interworking to convert the incoming Session Initiation Protocol (SIP) signaling to the traditional Multi-

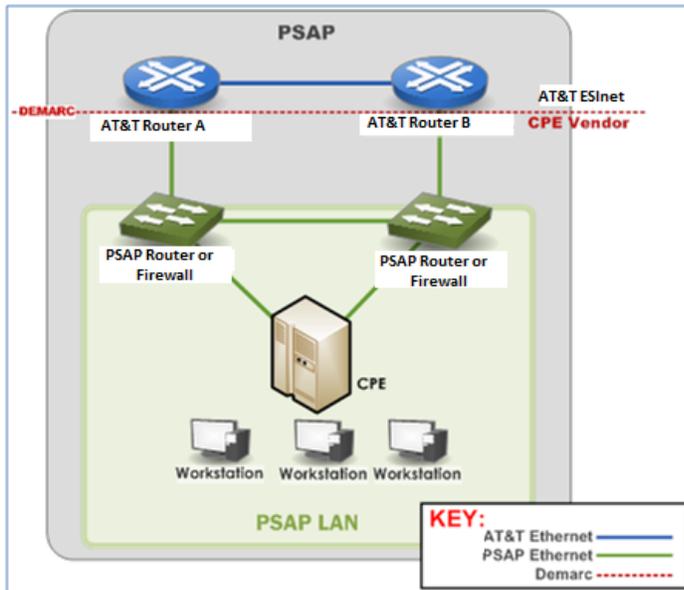
Frequency (MF) or Enhanced Multi-Frequency (E-MF) signaling supported by the legacy PSAP. The LPGs will allow legacy PSAPs to receive calls, retrieve Automatic Location Identification (ALI) data, and activate features the same way they do today.

The LPG will also support an ALI interface over which it can receive and respond to ALI queries from legacy PSAPs. Since the AT&T ESInet LIS and CIDBs utilize the same data source as the legacy ALI, the PSAP ALI query is directed to the ALI per usual legacy PSAP operations, eliminating the need to translate the ALI query from the PSAP into queries utilizing the HELD and Additional Data protocols and translating the two query responses back into an ALI response the PSAP is expecting.

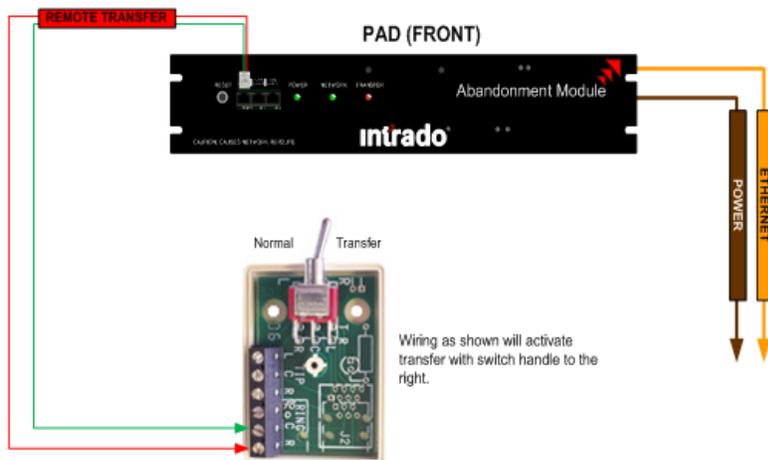




Once a PSAP is ready to accept i3 protocols, the environment above will be migrated to the environment below with no downtime.



In addition to the equipment provided above, AT&T can provide (at an additional cost) a PSAP Abandonment Device (PAD). This may be added to the system to allow the legacy functionality equivalent of a "Make Busy Switch". At a low cost, the PSAP can have the capability to activate the abandonment function with a physical switch located at the PSAP. When activated, the ESnet Core routing functions alert the ESnet core that the PSAP is now in an "abandonment state," and the ESRP will take the appropriate abandonment route pre-designated by the PSAP.



The same abandonment route activation may also be provisioned through a call to the AT&T NOC. This process requires no additional cost or equipment from a PSAP perspective.

#### 4.7 LEGACY SELECTIVE ROUTER GATEWAY (LSRG)

The primary function of an LSRG is to allow traffic from legacy Selective Router based networks to ESInets.

A Legacy Selective Router Gateway (LSRG) shall serve as the interface for legacy selective routers to terminate ISUP SS7 trunks utilizing an inter-tandem trunk group method of termination.

The LSRG shall convert the call signaling to SIP/RTP, query the existing ALI data management system to retrieve location information for the call and then route the call to the next nominal HOP based on a LoST query to an ECRF.

Additionally, the LSRG shall be able to facilitate bi-directional communications with the legacy selective routers for both voice and data (star codes) transactions.

Respondents shall include a description of the LSRG *if utilized* in their proposed solution to integrate the ESInet and legacy selective routing configuration. If an LSRG is not utilized, the respondent shall describe how the function of an LSRG is performed within their proposed solution.

**AT&T Response:**

Comply. The Legacy Network Gateway (LNG) and Legacy Selective Router Gateway (LSRGW) functional capabilities are implemented through the Protocol Interworking Function (PIF), NG9-1-1-specific Interwork Function (NIF), and a Location Interwork Function (LIF). The AT&T ESInet PIF is provided via best-in-class media server devices from leading off-the-shelf vendors. The PIF contains a highly available architecture within itself but is a physical termination of a TDM circuit and therefore does not lend itself to geographic redundancy. Availability and survivability is achieved by distributing the TDM circuits across multiple PIF elements such that the failure of one PIF will not impact all the circuits from a given originating end point. In the case of SS7, the PIF is separated into distinct elements that terminate the bearer trunks and signaling. The SS7 signaling elements are redundant and geographically distributed such that a single failure will not interrupt continued call processing. The PIF interconnects to the NIF via IP protocols including SIP.

The AT&T ESInet LIF exists within a highly available and geographically distributed application processing environment. The LIF operates under the supervision of the NIF and controls the interface to the legacy ALI end points.

The AT&T ESInet NIF exists within the same highly available and geographically distributed application processing environment as the LIF. A single hardware component failure at one of the application processing complexes will not interrupt processing of the LIF or NIF. A single geographic site failure (either the communication to the site or elimination of the site itself) will not prevent further call processing from occurring.

The AT&T ESInet currently provides star code functionality. Specifically we provide the ability for a call taker to use a single button on the call taker's display to complete either a transfer or three-way conference. For example we provide the ability for the call taker to transfer an incoming 9-1-1 call to another agency by pressing a button labeled with the type of agency-for example "Fire"-on the PSAP premises equipment. These transfers utilize pre-provisioned codes on a per-PSAP basis.

#### 4.8 LOCATION VALIDATION FUNCTION (LVF)

Respondents shall propose a solution that includes an NG9-1-1 Location Validation Function (LVF) as defined in the NENA 08-003.

The LVF is generally only used for civic location validation. Geo coordinate validation has some limited use, in extreme cases, including national boundary routing scenarios, over coastal waters, etc. The primary validation is accomplished as locations are placed in a LIS.

The LVF shall be designed to respond to LVF clients within five (5) seconds. The LVF shall be capable of supporting multiple simultaneous queries of a significant amount, respondents shall describe how this is supported.

The LVF data and interfaces are similar to those used by an ECRF representing the same geographic area(s). Additionally, it must support both iterative and recursive queries to external LVF sources.

Respondents shall describe their proposed LVF implementation, with particular attention to the arrangement of the proposed components, user interface and features and the security aspects of the LVF.

**AT&T Response:**

Comply. As part of the AT&T ESInet i3 solution, the Location Validation Function (LVF) is available to TSPs operating in the State via the LoST protocol (RFC 5222). This will allow them to pre-validate customer records against the State's GIS data to ensure that the civic addresses are 9-1-1 valid and will route and plot properly. The LVF is functionally identical to the ECRF, but implemented 100% independent from the ECRF as to not interfere with the critical call path functions of the ECRF. It is a NENA compliant LoST protocol server, compliant with RFC 5222.

**Commented [TMA43]:** West final merge update 2/29/16. DONE. See other deletions in this section 4.8.

Since the ECRF and LVF share a common code base, the customer is ensured that a location that has passed LVF validation will also route properly when the civic location element is presented to the ECRF because the exact same logic is used for both purposes.

Functionally, the address elements that are presented in the LoST request are validated against the GIS data provisioned to the LVF. The LVF can be configured to look at the Address Point layer followed by the Road Centerline layer to locate a match OR to only look at the Address Points.

Per STA-010.2 Section 5.3, "There is no concept of validation of a geodetic location in LoST" [with reference to RFC 5222]. While the LoST findService transaction with validateLocation set to "true" only supports civic location validation, the LVF will also support findService transactions for routing and first responder URIs. As such, a "standard" routing query using the routing URN along with a geodetic location will return the PSAP URI if available.

It is anticipated that when carriers first attempt to communicate with the LVF, comparable problems may occur, even though the LVF fully meets the requirements defined in RFC 5222. As such, AT&T has developed a LoST interworking specification which identifies the specifics of AT&T's implementation along with LoST Request and Response examples to aid the carriers with their LVF client implementations.

Provisioning of the LVF is also identical to the ECRF provisioning. It is simply another provisioning target of the Spatial Interface. As such, it will always contain the same GIS data as the ECRF.

The LVF has also been designed to handle extreme query loads. The ECRF tested to support a minimum of 100 queries per second for five (5) minutes.

Note that any User Interface required to interact with the LVF will be the responsibility of the Carrier making the LVF LoST requests.

#### 4.8.1 LOCATION SERVICES

Location is fundamental to the operation of the 9-1-1 system. Location is provided external to the ESInet, and the functional entity which provides location is a Location Information Server (LIS).

Respondents shall propose a solution that supplies a network interface to the LIS.

Respondents must include the necessary security provisions and define all communication paths between the LIS and the LVF, LSRG and LNG.

Respondents shall include a [description that covers the transition from the existing routing into the LIS.]

#### AT&T Response:

Comply. AT&T ESInet uses a Legacy Network Gateway (LNG) that provides a mechanism to obtain the caller's location at the time of the call by using the Location Interwork Function (LIF) to query the caller's appropriate Location Information Server (LIS) database.

Carriers providing their own LIS services must also continue to send their SOI records to AT&T to be validated and provisioned to the AT&T ALI system until all PSAPs in the State are served by i3-compliant TSPs. Once compliant, all calls originating from their network will leverage their LIS to provide location information server functions, including dereferencing of locations provided by reference to the LNG or PSAP. At this time, the ALI database will no longer be needed and carriers providing their own LIS will no longer have to send SOI to AT&T for ALI provisioning, though they will be required to utilize the ESInet LVF for location validation before provisioning records to their LIS. Carriers who still do not have a LIS will continue to send SOI records for validation and provisioning into the State's ALI database.

A carrier LIS is considered outside of the ESInet, while the State's ALI and its associated LIS interface is located inside the ESInet within the secured zone protected by firewalls and authentication.

The AT&T transitional LIS solution leverages an interface into the ALI database that supports HELD queries in conformance with RFC 5985. During carrier transition to NENA i3 compliance, AT&T will maintain the HELD interface into the ALI platform to simultaneously support legacy PSAPs and i3 PSAPs.

Commented [e44]: West to update to reflect the transition.

Commented [TMA45R44]: West final merge update 2/29/16. DONE.

The HELD interface into the AT&T Location Database (LDB, aka ALI) is leveraged by the LNG to retrieve PIDF-LO, by value and/or reference, to be delivered to the PSAP within the SIP messaging. The HELD interface is also presented to the PSAP CPE to provide dereferencing services and/or provide location updates for wireless calls.

Note that not all ALI fields map to PIDF-LO, for example Class of Service and Customer Name. As such, AT&T will also provide an ADR interface to retrieve this information to be included in the SIP signaling. For these fields, the LNG supports the Additional Data protocol (draft-ietf-ecrit-additional-data-28) to provide these data fields via the Call Information Database (CIDB). The CIDB is a type of Additional Data Repository (ADR). In the case of any significant changes to the Additional Data specification, updates will be placed on the roadmap, as it is critical that the implementations are coordinated with the different i3 functional elements (CIDB, LNG, and Terminating ESRP) that leverage this protocol.

Also note that fields in legacy data stores describing civic locations (e.g. ALI responses and E2 responses from MPC/GMLCs and VPCs) do not map directly to the NG9-1-1 GIS data schema (draft). Appendix A of NENA STA-010.2 provides recommendations for mapping legacy data fields into NG9-1-1 fields. PIDF-LO creation will comply with the recommendations of this appendix until such time that TSPs are providing their own LIS services at which time PIDF-LO becomes a “pass through” element of the ESRP and PIDF-LO construction will be at the discretion of the TSP.

When transitioning from the existing legacy routing to i3 routing, there are a number of interim steps that can be utilized with the goal being to utilize the ECRF for geospatial call routing per the NENA i3 specifications.

Routing options and the transition away from legacy routing will be dependent on the quality of the GIS data as well as proper validation of subscriber locations, whether they're supplied by the Location Database (ALI) or a TSP LIS. Prior to transitioning to routing that will utilize PIDF-LO and an ECRF, a GIS data readiness report will be provided to the region wishing to make the transition. This report will include the “current” routes for all TNs in the ALI database as well as their NG9-1-1 routes. This report will allow the PSAP to decide if it is time to make the routing transition or if more work will be required in order to get the desired routing results.

#### 4.9 LEGACY DATABASE SERVICES

The Board recognizes that ALI database and other legacy database services (LDB) will be required for the foreseeable future.

Respondents shall include in their proposal details about their approach to ALI database connections and ALI maintenance functions as well as other any other LDB functions necessary to support the ANGEN system.

Respondents shall define how their proposed LDB service will be operated, managed and maintained for the duration of the contract.

Respondents shall also describe the PS/ALI capabilities of their solution within their proposal.

#### AT&T Response:

Comply. AT&T will provide and maintain a statewide ALI database to respond to requests and deliver E9-1-1 ALI to the State's PSAPs.

The AT&T solution includes full ALI services which will be maintained until all carriers within the State have migrated to i3 with delivery of PIDF-LO to the ESInet. This ALI will serve as the LDB providing location data via the HELD interface to the LNG and PSAP CPE for i3 compliant services. Legacy PSAPs will continue to connect directly to the ALI database as they have done in the past. The LDB solution includes highly available DBMS ALI systems and corresponding HELD and Additional Data interfaces as well as data analyst services and established processes to ensure our services meet or exceed the State's 9-1-1 database service standards.

#### Redundant ALI Databases

AT&T will provide and maintain a statewide ALI database to respond to requests and deliver E9-1-1 ALI to the State's PSAPs.

The AT&T ALI database systems are deployed in a redundant, geographically diverse configuration to ensure the highest reliability and survivability. The AT&T ALI database system shall remain continuously deployed in a geographically redundant environment and be available 99.999% of the time to all customers. All critical system components will be redundant, and the application employs application level monitoring and automated failover to recover from system failures without impact to 9-1-1 call processing.

The AT&T ALI database systems include the following features:

- Query response verification messaging between ALI systems and heart beating/application monitoring systems are employed to ensure high availability. Dynamic ALI updates retrieved from selective routers and wireless/VoIP Mobile Positioning Center (MPC)/ VoIP Positioning Center (VPC) systems are shared between ALI systems to help prevent network and system outages.
- Retrieval of wireless and Voice over Internet Protocol (VoIP) location updates via the E2 or PAM (PSAP to ALI Message specification) interfaces.
- Steering to retrieve location information for wireline calls from external database systems. ALI steering is highly configurable and Telephone Number (TN) range steering, and No Record Found (NRF) steering.
- Support for off-board routing queries from legacy selective routers.

Commented [TMA46]: West final merge update. DONE.

#### Legacy MSAG Validation

The AT&T database management system (DBMS) and analyst services help ensure the highest level of 9-1-1 data accuracy. For PSAPs not currently using AT&T's ALI, AT&T will work with the State to migrate the State's 9-1-1 data to the AT&T DBMS and ALI systems and coordinate with the TSPs to perform an initial data load.

Following the initial data load, Telephone number (TN) record updates from TSPs will be processed as follows.

- TSPs may submit subscriber record updates to the DBMS system for Service Order processing (SOI). TN record update batch files from Local Exchange Carriers (for landline telephone records) and wireless/VoIP telephone service providers (for ESRK/ESRD/ESQK) are received via secure Internet data transmission and processed via an automated file processing system. The DBMS system performs address validation against the MSAG database, and error files are returned via the file transfer system to each TSP for correction.
- TN record updates may also be submitted by TSPs through the web-based DBMS UI or the portal file transfer tool. TN record updates submitted through the DBMS UI system are immediately validated, and users receive confirmation or error messages back to screen.

TN record updates are processed and records without validation errors are posted to the ALI database systems within one (1) business day outside of system maintenance windows. Validated records also generate updates to the AT&T ESInet.

The database management system validates records and processes errors exceeding the guidelines as set forth in Section (12) of NENA 02-011, Standards for Error Codes. The database management system validates 84 separate data, functional and portability errors as compared to NENA's 22 Recommended Standard Error codes.

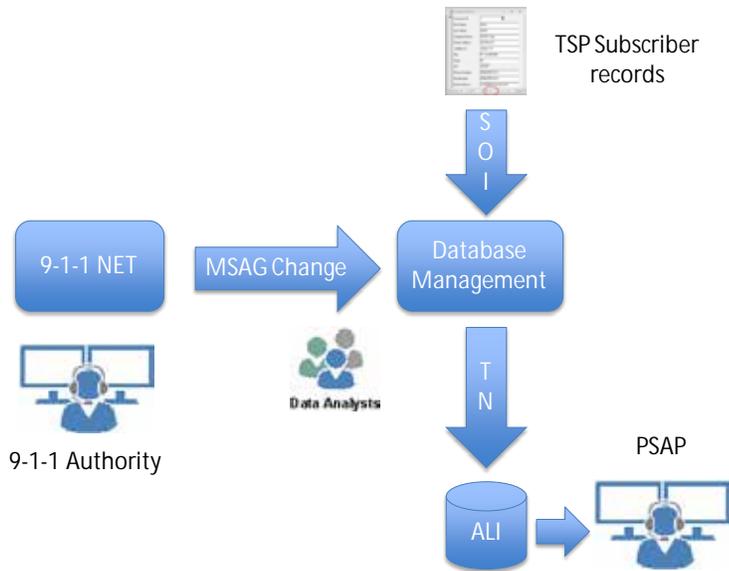


Figure 17: Location Data Management Flow

### Web-based DBMS

The AT&T solution includes customizable applications and UI that will allow for referral and resolution of 9-1-1 data errors, ALI and selective routing discrepancies, MSAG discrepancies and TSP subscriber records that fail MSAG validations.

AT&T will provide a feature rich, highly configurable web-based database management system (DBMS UI) for reviewing, referring, and coordinating between multiple agencies to ensure the highest data integrity. The DBMS UI is accessed via the web-based AT&T portal following secure single sign-on and available 24x7x365.

Following login to the AT&T portal and validation by the AT&T identity management system, users are able to navigate to and access the following web-based applications and tools:

- The web-based DBMS UI for resolution of 9-1-1 data errors, ALI, and legacy selective routing discrepancies
- Metrics reporting on data performance standards.
- A Dashboard that provides a single interface for users to view and work discrepancies and errors
- A document library with user guides, training videos, and process documentation.

- A file transfer tool that provides a Graphical User Interface (GUI) for uploading Service Order Input (SOI) files or retrieval of errors and statistics files.

AT&Ts web-based DBMS UI allows users to query for 9-1-1 data records or for specific transactions. Users can query for MSAG records and change requests, ALI audit record and discrepancy requests, or TN records. TSPs can query for TN errors. Users will be able export the selected records in a user-defined format including NENA-2, NENA 3.1, Excel or CSV. User level permissions limit the number of records that can be queried or exported via the DBMS.

- The DBMS UI also allows TSPs to fully manage their own telephone number (TN) records and to resolve TN error fallout to MSAG validation.
- The DBMS provides a flexible UI interface to allow users to specify a variety of fields as search criteria. Users can also search by a specific transaction ID. TSP users can search for TN errors by any combination of fields or by a specific error code.

The AT&T web-based DBMS-UI also facilitates coordination and resolution of changes to MSAG, ESN and ELT data and to manage ALI discrepancies.

- The DBMS-UI allows TSPs with the State to fully manage their own telephone number (TN) records and to resolve TN error fallout to MSAG validation. Users can query for records, select one or a group of records to make changes to and submit updates. The system allows configured users to insert, change or delete TN records and supports mass changes of TN records. Users can also migrate or unlock TN records to support LNP processing. When a user submits a TN record update, the system validates the update and provides the user with a near-immediate confirmation or descriptive error response. The user can then make corrections as appropriate and re-submit.

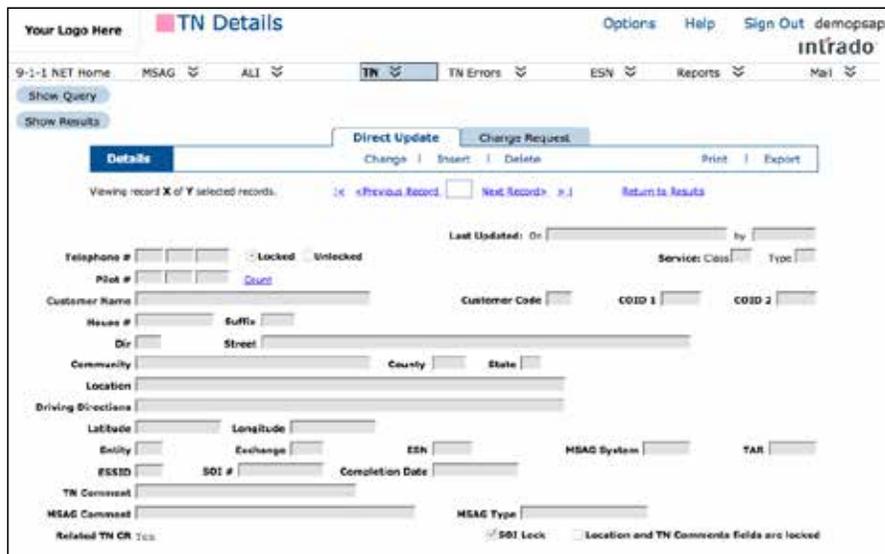


Figure 19: DBMS Direct TN Management Screen

## PS/ALI

AT&T offers optional PS/ALI services to private switch or Centrex operators that allow records to be submitted with a detailed location description for each end user making a 9-1-1 call from a private switch or Centrex system. Two options are offered. Private switch/Centrex providers with an account with AT&T (PS/ALI customer) will be able to submit and manage PS/ALI records either via Service Order Input (SOI) or via a secure web-based DBMS user interface. No changes will be required to the PS/ALI providers' systems. The DBMS allows PS/ALI customers to insert and change records and to correct validation errors. PS/ALI customers will be able to upload and submit SOI files and download errors and statistics files using the AT&T ESInet File Transfer Tool accessed through the AT&T ESInet Portal (UI) or through the AT&T ESInet file management system.

Following the execution of a new PS/ALI contract agreement, AT&T will work with the private switch/Centrex provider to identify how the PS/ALI customer is delivering 9-1-1 calls and data today. AT&T will then work to transition the PS/ALI customer based on their connectivity type as follows.

- For PS/ALI customers that directly trunk to the legacy selective routers, AT&T will work with the PS/ALI customer to order new trunks if necessary and re-home to the AT&T ESInet LNG based on the trunk signal type, PRI or CAMA. AT&T will work with all new PS/ALI customers to ensure they comply with appropriate security measures. Connectivity fees will be charged for connectivity to the LNG as stated in the tariff.

- For PS/ALI customers that deliver voice traffic to LEC end-office switches either via dedicated 9-1-1 trunks or combined with normal voice traffic, connectivity changes will not be required to migrate the voice traffic.

#### 4.10 DISASTER RECOVERY / BUSINESS CONTINUITY

Respondents must include a disaster recovery capability within the proposed solution to offer continuity of operations in the event of a malfunction of the network, system or i3 components used to provide the primary ANGEN services.

This service must be separate and distinct in design and operation from the core ANGEN system components proposed by the Respondent.

Alternatives presented here may include the use of commercially available services and or commodity IP connections that can operate for temporary periods of time (to be determined via SLA) until normal system operations are restored to individual PSAPs or regions served by the ANGEN system.

Basic functionality must include the following at all PSAPs or locations as may be designated by the Board:

1. Receive and answer 9-1-1 voice calls via alternate hand set/desk set or other proposed device
2. Ability to Transfer via traditional landline or other means to other AL PSAPs, mirroring current PSAP transfer capabilities and practices
3. Provide for the temporary system level logging and recording of calls being processed by the disaster recovery system

#### AT&T Response:

Comply. AT&T has established defined and reasonable business continuity and restoration plans including complex disaster and evacuation contingencies and conducts annual reviews to confirm adequacy of the plans. Adequate hardware spares are on hand to enable attainment of reliability and mean time between failure objectives. Geographically diverse engineering and redundancy provide ability to survive disaster scenarios. Power infrastructure and environmental systems are deployed so that a commercial power failure does not result in an interruption of service.

AT&T has developed its disaster recovery plans and processes to achieve the key objectives of maintaining the highest industry availability of the 9-1-1 infrastructure and the ability to recreate the core of North America's 9-1-1 systems in a minimal amount of time in the event of a major network and system incident. Our security infrastructure and processes also play a key role in ensuring maximum uptime of the AT&T ESInet systems.

AT&T's solutions are highly fault tolerant with automated failover capabilities to minimize down time and the need for user intervention in the event of a catastrophic failure. All vital system components are protected through the use of redundant modules to eliminate any single point of failure.

## Business Continuity

AT&T provides life-critical services supporting 9-1-1 and public safety and is strongly committed to continuous, sustained readiness of its applications, systems, networks, and processes 24x7x365. AT&T's business and service continuity plans, geographically diverse and redundant systems, and incident management processes and plans provide confidence that continuous operations will be sustained through planned or unplanned events.

### Service Continuity Planning Steps

#### 1 Risk Assessment

AT&T business and service continuity risk assessment addresses naturally occurring and facility affecting events, as well as system interruptions. Processes in place address interactive management of events designed to support continuous functioning of 9-1-1 systems and enable personnel to continue to perform through specific incident conditions. AT&T's robust incident command system is used for any type of business interruption.

#### 2 Service Continuity Strategy

AT&T is strongly committed to providing essential business processes, systems, and networks on a 24x7x365 basis and is well prepared for possible disruptions and disasters. As a critical public safety service provider, AT&T has in place a robust business and service continuity program designed to prevent or mitigate service disruptions and support rapid response to loss or impairment of crucial business functions or infrastructure. To address potential risks, AT&T utilizes:

- Redundant, Geographically Diverse Systems – The AT&T ESInet 6-Core architecture is geographically diverse and redundant in data centers located within the AT&T 21-state footprint.- Incident Management – In the event of an unplanned outage, or intermittent outage of a system, network component, or application that has the potential to cause an adverse impact to production services, AT&T immediately engages the AT&T ESInet Incident Command System, which is based on the FEMA Incident Command Structure. The incident team, led by a qualified incident commander and supported by AT&T technical and operations resources, evaluates the information received, determines the problem statement, categorizes the problem severity level, and manages/works the incident until the incident objectives are met.
- Business and Service Continuity, Disaster Recovery, and Emergency Procedures – AT&T has established business and service continuity, disaster recovery, and emergency procedures that address potential risk situations to AT&T facilities or systems, including:

Commented [TMA47]: West final merge update 2/29/16. DONE.

- Building emergency procedures (e.g. bomb threat, earthquake, power failure, and flood)
- Data center risks (e.g. water, flood, power, electrical, and fire)
- Security Risks (e.g., information and network security, physical security)
- Building evacuations
- Pandemic
- Inclement weather
- Building disasters

### 3 Implementing Risk Reduction and Recovery Measures

AT&T's essential processes, systems, and networks supporting 9-1-1 traffic are designed and deployed to accommodate possible disruptions and disasters to any given element or data center and support 24x7x365 continuous operation. In the event of unplanned system or network outages, this diversity allows for AT&T ESInet 9-1-1 systems to continue operating while Incident Management processes are engaged to identify and resolve issues so that redundancy is fully restored.

### 4 Developing Plans and Procedures

The AT&T ESInet's continuity plans cover critical application and infrastructure components. At least one copy of the continuity plans is maintained offsite in secure storage, available 24x7. Key personnel possess encrypted electronic copies of business continuity information, updated regularly. AT&T conducts reviews and updates of continuity data and plans at least annually. Certain continuity plan functions are exercised on an on-going basis, such as Incident Management, which is utilized for all planned and unplanned events. AT&T is well prepared and practiced for contingencies and has communications protocols and processes in place to notify personnel, customers, vendors, suppliers, and regulatory bodies in support of AT&T ESInet applications, systems, and network components. Continuity plan materials include:

- Essential functions and personnel
- Employee emergency contact information
- Building emergency procedures
- Contractor/Vendor contact procedures
- Crisis communication plans
- Specific scenario response procedures
- Customer contact and notification
- Life mission critical system recovery processes

### 5 Testing Service Continuity Plan

AT&T implements and tests its Incident Management Plan on a regular basis and conducts audits and reviews and/or walk through exercises of its continuity plans at least annually. Information gathered feeds into a continuous improvement cycle as part of the maintenance and review process.

6. Service Continuity Plan Maintenance

AT&T conducts a maintenance review of its continuity plans at least annually. In this review, which is coordinated by the overall plan owner, the interdependent plan owners identify, validate, implement, and document changes to the plan components.

## SECTION 5 SYSTEM REPORTING and i3 LOGGING REQUIREMENTS

### 5.1 REPORTING AND DATA COLLECTION SYSTEM REQUIREMENTS

The Board requires enterprise wide reporting and data collection capabilities on all aspects of the ANGEN ecosystem.

This capability must be agnostic to provider, system or technology and must be able to collect reportable data on the operation, configuration, and maintenance of the ANGEN system regardless of function, domain, service area or provider.

Given that there may be multiple providers of components and systems that will comprise the ANGEN ecosystem, the Board will entertain stand-alone proposals from vendors who can offer an enterprise wide, multi-vendor, fully integrated solution to satisfy this requirement.

Respondents may offer enterprise wide reporting as a component of their solution as well.

The Board will not entertain proprietary, disparate or system specific reporting systems.

Respondents must be prepared to provide or support the collection and integration of an enterprise wide reporting and data collection capability.

#### AT&T Response:

Comply. The reporting and data collection system requirements can be provided via the Customer Management Portal and Clear View reporting suite as described in the response to section 5.2.

As an option to the basic reporting package included in our proposal, we are also providing an Optional Service Offering for ECaTS, a highly customizable, enterprise-wide, industry proven reporting platform.

The ECaTS solution is provider, system and technology agnostic and collects reportable data on the operation of NG 9-1-1 systems regardless of function, domain, service area or provider.

The ECaTS solution overview and pricing is attached (Appendix).

### 5.2 STATEWIDE STATISTICAL MONITORING

#### 5.2.1 SYSTEM SPECIFIC REQUIREMENTS:

The proposed reporting and data collection system must provide for secure user ID login and password with the ability to enforce minimal password requirements and require password changes on a predetermined interval.

The proposed reporting and data collection system must support role based access:

- Allowing statewide users to have access to reports for the entire State.
- Allowing some users to have access to PSAP(s) report information only.
- Allowing other users to have both PSAP and ECD Manager level access to report information.
- Allowing functionality/data to show only to certain users and not to everyone.

The proposed reporting and data collection system must allow for the scheduling of automatic report generation and delivery by email as attachments to one or more recipients in a format selected by the recipient.

#### AT&T Response:

Comply. The AT&T ESInet solution logs hundreds of data points for each call that traverses the system to assist in tracking and troubleshooting calls. The Customer Management Portal provides participating PSAPs and approved personnel 24x7 access to call detail records through a secure, web-based portal. The call detail records provide the user with all of the pertinent information for each call.

The standard Clear View reporting suite provides the reports in 5.2.2 through a web-based interface. The State will have the ability to request that custom reports be developed and deployed via the web interface (development fees may apply).

Users will have a predetermined PSAP or set of PSAPs for which they are able to view statistics. For example, some users will only be able to view their own PSAP's statistics, while another user may be provided authorization to view all PSAPs in a county, region, state, or other appropriate grouping.

#### 5.2.2 DATA CAPTURING REQUIREMENTS:

The proposed reporting and data collection system must provide the following:

- Ability to electronically capture and buffer Call Detail Records (CDR) for each individual PSAP.
- Ability to securely capture call, text and operational data using a reliable capture method
- Ability of a buffering device to batch CDR payload, time stamp it, encrypt it and deliver the CDR data using a secure and encrypted methodology.
- Ability to provide multi-level reporting including: PSAP, ECD/County or Statewide level.
- Ability to seamlessly report PSAP, ECD/County and State's 9-1-1 call statistics from one web-based location regardless of the CPE installed at PSAPs or other hosted locations.
- Ability to export reports in PDF, HTML, CVS and Excel formats
- Ability to generate universal reports from anywhere with an Internet connection and accessible on any devices with an Internet browser, i.e. iPad, iPhones, iOS, Android or Windows based systems, laptops and desktops.

- Ability to analyze ANGEN’s overall 9-1-1 system performance
- Ability to provide a color coded map view of the State’s System Health for all PSAPs in the State.

**AT&T Response:**

Comply. The system is compliant with the above requirements.

The AT&T ESInet solution logs hundreds of data points for each call that traverses the system to assist in tracking and troubleshooting calls. The Customer Management Portal provides participating PSAPs and approved personnel 24x7 access to call detail records through a secure, web-based portal. The call detail records provide the user with all of the pertinent information for each call.

Users will have a predetermined PSAP, or set of PSAPs, for which they are able to view statistics. For example, some users will only be able to view their own PSAP’s statistics, while another user may be provided authorization to view all PSAPs in a county, region, state, or other appropriate grouping.

**Commented [e48]:** AT&T – see comment in 5.2.4. West could provide - 2018 is estimated timeframe. Cost TBD

**Commented [TMA49R48]:** Please see my suggested response.

**Commented [TMA50]:** West final merge update 2/29/16. DONE.

Report	Type	Frequency	Description
MSAG Change Update Interval	ALI	Monthly	Summary of MSAG Updates by state, status, and length of time to process
ALI-M System Performance Report	ALI	Monthly	TN, ALI bid, and NRF counts for the reporting month
TSS System Performance Report	ALI	Monthly	Counts of TNs, SOI records processed, SOI records in error, and pending errors for the reporting month
ALI-M Report	ALI	Monthly	Detailed monthly breakdown of ALI activity at the state, county, and PSAP levels
NRF Reports	ALI	Monthly	Summary of NRF activity during the reporting month by status, state, PSAP, Telco category, with time to resolve
TN Census Report	ALI	Monthly	Monthly count of TNs by state, and service class
Monthly TSS Outstanding Error Report	ALI	Monthly	Summary of the outstanding TSS errors at the end of the reporting month by state, error type, and error code
Monthly TSS Resolved Error Report	ALI	Monthly	Summary of the TSS errors resolved during the reporting month by state, error type, and error code
Service Order Interface (SOI) Reports	ALI	Monthly	Summary of monthly SOI processing activity, including processing time exceptions, record counts and error percentages by telco category, state, company, and filename

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Report	Type	Frequency	Description
ANI Failure Report	ALI	Monthly	Monthly summary and detailed information on ANI failures by state and failure type
E2 Bid Reports	ALI	Monthly	Statistics relating to phase 1 and phase 2 wireless retrievals by state, county, and PSAP
Wireless Cross Reference Report	ALI	Monthly	Router, Port ID, and Circuit ID information for all wireless connections to the AT&T ALI nodes
PSAP Activity Report	ALI	Monthly	Total number of ALI bids for the reporting month, the average number of bids per day and hour and the peak number of bids per day and hour for each PSAP.
New Residential Report	ALI	Monthly	Count of new Residential-class SOI records and Residential-class TNs for each state in the BellSouth region for the reporting month.
True Up Report	ALI	Annually	TN census counts by State by County by Company Name. It also includes Company ID, MSAG, Telco Type and ESN. There is a sheet for the entire region as well as one sheet for each state.
Regulatory Report	ALI	Monthly	Business, residential and total TN census counts for ILECs and CLECs operating within the region
ESN/ELT Reports	ALI	Monthly	List of ESNs and associated ELT Information
AVM Metrics Reports	ALI	Monthly	Statistics related to MSAG processing including process timeframes and status
ALI-M Information Reports	ALI	Monthly	Statistics related to the hourly distribution of ALI retrievals, special case retrievals, and ALI retrievals by CoS <sub>o</sub> per PSAP
ICO All Error Report	ALI	Annually	Summary of outstanding errors in alternate ALI provider regions
Telco NRF Report	ALI	Daily	List of NRFs by Telco
701/709 Report	ALI	Weekly	List of all pending 701/709 errors
ECRS Availability	Routing	Monthly	The number of minutes of downtime during a rolling 12 month period with specific components associated with that downtime and their responsible party.

Report	Type	Frequency	Description
PSAP Call Delivery	Routing	Monthly	Report for each PSAP on the network comparing the number of ingress calls to the number of calls delivered to each valid destination for each PSAP. The report will identify the valid destination to which the call was delivered. The report will include a summary of exceptions that were not delivered to a valid destination with call details per PSAP.
Voice Quality	Routing	Monthly	Report of the average daily PMOS values per PSAP, including an exception report showing each PSAP that had one or more daily PMOS value below the degradation threshold with the responsible party.
Monitoring, Alarming, and Logging Availability	Routing	As Needed	Reports will be provided in conjunction with an incident affecting monitoring, alarming, or logging with impact start time, duration, and restoration time.

**5.2.3 AD-HOC REPORTING SYSTEM**

The system must provide the ability for ad-hoc reporting functionality:

The interface must provide drop-down list boxes, check boxes and other easy to use interface options for the selection and generation of ad-hoc reports.

The interface must provide users with access to all major fields in the system with help functions that clearly explain the value stored in each field.

The user must have the ability to save and share ad-hoc reports with other users in the system.

**AT&T Response:**

Comply. The system will allow ad-hoc reporting.

**5.2.4 SYSTEM DASHBOARD**

The system shall provide a web based “Dashboard” that is based on User Role. Summary data on the Dashboard will provide “drill down” capabilities.

**AT&T Response:**

Comply. The AT&T ESInet Solution currently offers a monitoring dashboard for internal NOC use. AT&T is willing to work with the Board to scope and build a web-based end user facing

dashboard that displays the operational status of the facilities and elements that comprise the ESInet to meet Alabama's needs. The components and requirements described above can be supported.

**Commented [e51]:** West has a monitoring dashboard that provides 'health status' for the ESInet. ATT needs to advise if they want to push this to the state.

Can this be combined with the last bullet in 5.2.2?

**Commented [TMA52R51]:** AT&T want's to comply with the requirement and work with the state to identify use cases.

### 5.3 OPERATIONAL REPORTING AND LOGGING

The system shall provide access via Crystal Reports or a similar reporting tool to all data elements via a reporting server. Queries must be restricted to the reporting server which shall be as current or near real time as is practicable.

At a minimum, the following data elements shall be logged and readily available for reporting purposes at the system level and at the ECD/PSAP level:

- Payload processing times
- Answer time
- Disconnect time
- Incoming IP address
- Pre-Defined Reports – restricted to PSAP(s) based on user role
- Total count of Payloads by Type
- Average Event Waiting Report
- Average Event duration
- Total Abandoned Events
- Events by incoming IP address
- Events by hour of day
- Events answered by user ID
- Events by day of the week
- Events transferred
- Event transferred to PSAP
- Position answered
- Events answered by position
- Events answered by all positions
- Agent availability report
- Call volumes
- Individual Call detail Information
- Summary of Call Loads

Respondents shall provide examples of operational reports and describe the ability of the system to capture, store and report on these data elements.

#### AT&T Response:

Comply. The Customer Management Portal and Clear View web-based reporting meet the requirements as applicable to the ESInet.

### 5.3.1 *EVENT REPORTS*

Event reporting shall record the timing of transit for each payload for purposes of diagnostics.

All event reports shall, at a minimum, include the functional element being reported and the system time of such event.

The system shall provide, at a minimum, the following event reports:

- Time of payload entry through BCF;
- Time for each functional element to perform routing and PSAP assignment;
- Time of answer at PSAP; and
- Time of disconnect at PSAP.
- A cumulative total elapsed time for payloads to traverse the system.

Times shall be stored as Coordinated Universal Time (UTC) and converted to local time based on the User Profile.

Times shall be stored in 24 hour format including thousands of a second.  
2015-07-31 20:51:20.537 UTC – for example

The system shall provide a Time Server on the ESInet using the Network Time Protocol (NTP). PSAPs will be offered use of this Time Server to synchronize the clocks on their 9-1-1 CPE, workstations, etc.

Respondents shall describe their proposed solution for event reporting functionality.

#### **AT&T Response:**

Comply.

Please see the response to section 5.2 for event reporting functionality and reports. Event data is time stamped upon ingress of payload entry through the LNG or BCF and at the time of answer and disconnect at the PSAP. Event data also tracks the time for each functional element to perform routing and PSAP assignment, by tracking the time it takes to traverse from the selective router to be delivered to the PSAP. This event data tracking by functional element allows for call diagnostics.

AT&T suggests providing a "Time of payload entry through LNG" report to support complete transaction logging of an inbound 9-1-1 call beginning with ingress into the system.

### 5.3.2 *MAINTENANCE / CONFIGURATION REPORTS*

- Lists events by date / time range
- Provides drill down to specific events

**AT&T Response:**

Comply. AT&T ESInet performance monitoring systems have the ability to either retrieve data upon request or publish pre-defined reports based upon the specific needs of the requestor which are then delivered electronically. These reports can be either real-time or historical and the views are based on the actual state of infrastructure. The performance monitoring system supports trend reports that provide short-term and long-term trend plots of imminent violations and customized reports for fault, performance, threshold, and informational messages.

**SECTION 6 SERVICE/SUPPORT REQUIREMENTS**

**6.1 CUSTOMER SUPPORT SERVICES**

The ongoing operation of the ANGEN system will require customer support services be provided as a component of any proposed solutions.

Respondents must agree to meet the current Service Level Agreements (SLA) being used in the ANGEN network operation and negotiate “in good faith” new SLA’s that meet the expectations of the functionality described in this RFP and the Board.

Customer support services will be required at various levels including the Board, PSAPs, and other system service providers as necessary or designated by the Board.

Anticipated customer support services would include:

- Event management
- Incident management
- Diagnostics and reporting
- Problem resolution/trouble handling
- Network fault monitoring
- Request fulfillment
- Access management
- Remote diagnostics
- Environmental requirements
- Capacity management
- Change management
- Configuration management
- Transition management

Respondents shall provide a description of their proposed customer service support services.

**AT&T Response:**

Comply.

As an incumbent 9-1-1 Service Provider to the Alabama PSAPs, AT&T understands the needs and requirements for providing PSAP customer support. AT&T utilizes dedicated Customer Support Service centers to handle 911 maintenance for the State of Alabama. The 911 Resolution Center (911RC) is the single point of contact for 911 customer trouble reporting. This 911 center coordinates documentation, dispatch and resolution for the 911 center trouble report and is the status group for any reroute requests that the 911 customer may have. AT&T 911RC works closely with the West network operations center (NOC) that performs 911 PSAP reroutes and that monitors and proactively responds to network alerts that are generated by the 911 network elements. Both of these centers are 24/7/365 and have disaster recovery plans in place that include physically diverse alternate locations. These centers coordinate with other AT&T organizations in response and resolution of 911 impacting troubles and provide the following services required for the State of Alabama:

### **Event Management**

Maintenance of the AT&T ESInet solution is done with no scheduled downtime. We schedule planned events for routine maintenance in ways that 9-1-1 operations are not impacted. A notification of the upcoming event will be sent to the State as applicable. Planned events are fully staffed and managed with a trained event management team, facilitating the change implementation, monitoring, and communication through the length of the event.

The AT&T ESInet team will conduct major and minor planned and critical un-planned events for all NG9-1-1 Services, system maintenance, or upgrades that may impact the State or any of Alabama's NG9-1-1 Customer PSAPs. AT&T fully manages and completes these events with a trained event management team, facilitating the change implementation, monitoring, and communication through the length of the event. Event team personnel will keep the State informed of event progress. We adhere to stringent, internal event plan processes and procedures to include step-by-step execution procedures with the associated time frames, back-out procedures, and baseline and validation testing. AT&T includes the required back-out time within the scheduled maintenance time frame.

We will notify the State's single point of contact in writing and will schedule release installations within an agreed upon window of time. Acknowledgement of notification is required from the State.

We will send an email notification to the State at the start and end of the pre-arranged maintenance interval.

The AT&T ESInet team and the State will provide all necessary resources to successfully perform and complete the maintenance.

### **Incident Management**

In the event of an unplanned outage, or intermittent outage of a system, network component, or application that has the potential to cause an adverse impact to production services, we

immediately engage the Incident Command System, which is based on the FEMA Incident Command Structure. The incident team, led by a qualified incident commander and supported by technical and operations resources, evaluates the information received, determines the problem statement, categorizes the problem severity level, and manages/works the incident until the incident objectives are met.

Incident team personnel are trained in incident command by Emergency Management Institute; a FEMA sponsored Emergency Management Course. This course is a prerequisite to Incident Management training and part of the certification program. Each Incident Commander (IC) is certified prior to leading an Incident without supervision. Trainees must complete the mentoring program and have successfully managed mocked incidents along with supervised incidents. Incident Management is available 24x7x365.

### Diagnostics and Reporting

The AT&T ESInet technical support staff stands by to support the AT&T ESInet solution 24x7x365.

**Commented [TMA53]:** West final merge update 2/29/16. DONE. See additional merges in this section.

Tier 1 support will engage Tier 2 and Tier 3 support personnel to resolve high-priority tickets and alarms. In situations where the Telephone Service Provider(s) need to be engaged for troubleshooting, the NOC will contact the appropriate wireline, wireless and/or VoIP carriers to initiate the troubleshooting process for full turn-key 24x7x365 support.

**Commented [e54]:** AT&T to review and revise.

Remote monitoring of network and computer performance is conducted to provide statistical data on the number of alarms received and reported based on severity. Remote monitoring captures elements of a complex end-to-end service environment, such as network elements, computer systems, databases, and the applications themselves. NOC staff can monitor the complex dependencies among these managed elements and alert the appropriate group for interpretation. This provides a method to immediately notify designated personnel of any system failures or performance degradations.

**Commented [TMA55R54]:** Perhaps better suited to reference elsewhere in the bid however past PSAP Dispatcher experience does not seem relevant to tech support.

If the NOC staff determines that a situation requires remote hands assistance, the field support team will be engaged for the dispatch of on-site technicians.

When a potential or actual customer-affecting issue is defined and determined to be an incident, the Incident Administration team is engaged. The team uses established processes that are ISO 9001:2008-compliant for immediate escalation, notification, and reporting. The Service Management team coordinates internal communications and documents items including root cause analysis, customer impacts, countermeasures, and improvements.

The NOC has the appropriate tools to escalate any problem within the organization and to associated vendors. We provide the onsite support to resolve problems with the solution that cannot be otherwise addressed through remote access.

### Problem Resolution and Trouble Handling

In case of a service interruption and/or outage, we have instituted Incident Management processes and procedures for dealing with various severity levels during the course of an event. Our incident response tools include use of the Incident Command System (ICS modeled directly from the Federal Emergency Management Agency (FEMA) Emergency Management Institute. The ICS processes include resolution, documentation of any incident, communications, and post- event analysis. We manages incident and provide customers with up to the minute notification and status of ongoing service affecting issues that may impact the AT&T ESInet solution.

The Incident Command team will prepare and submit a root cause analysis (RCA) of a Priority Level 1 or Level 2 event describing the impact of the event, the cause, resolution and any preventative steps that can be taken to eliminate future events.

### Network Fault Monitoring

The NOC maintains comprehensive utilities for monitoring and management of the solution. Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. Delivery of monitoring reports, including bandwidth utilization and connectivity, are provided as mutually agreed upon during contract negotiations. Traditional network management tools are complimented by active application monitoring and alerting. The AT&T ESInet application elements will also report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

### Request Fulfillment

Our customer support organization provides ongoing tiered support services to monitor service level performance, manage help desk requests, escalate support procedures, and support the customer to reach the highest level of operational excellence. The team is in place to receive, analyze, and rectify problems and information requests.

### Access Management

Remote access to the AT&T ESInet network is permitted providing that authorized users are authenticated, and privileges are restricted. Remote access is only permitted via equipment which utilizes a firewall, anti-virus protection, and strong authentication. Any connections over the Internet must employ an authorized VPN client or utilize Information Security-authorized IT processes.

Remote access to perform systems administration tasks is achieved over Secure Shell (SSH). Our administrators follow the principle of least privilege to ensure that all user accounts only have the necessary privileges to perform the work.

**Commented [e56]:** AT&T to review and revise

**Commented [TMA57R56]:** Response looks sufficient, would like concurrence from AT&T technical and TSC team.

The NOC will provide 24x7x365 monitoring of the AT&T ESInet network and equipment. For security purposes, we do not allow outside vendor/customer access to monitoring equipment. We will provide real-time reporting capabilities as well as access to the NOC for real-time updates on network and equipment health.

#### **Remote Diagnostics**

Remote monitoring of network and computer performance is conducted to provide statistical data on the number of alarms received and reported based on severity. We use the monitoring tools to capture the elements of a complex end-to-end service environment, such as network elements, computer systems, databases, and the applications themselves. NOC staff can monitor the complex dependencies among these managed elements and alert the appropriate group for interpretation. This provides a method to immediately notify designated personnel of any system failures or performance degradations.

The NOC leverages a number of highly sophisticated monitoring tools to ensure AT&T ESInet systems and networks are maintained to the highest quality and availability. These tools include HP Openview for monitoring all network elements, data communications, and remote facility environments.

#### **Environmental Requirements**

We will provide environmental requirements and recommendations after such time that a custom network design is created for the State of Alabama.

#### **Capacity Management**

The Core routing and intelligence of the AT&T ESInet solution provides the State with immediate scalability in call routing and data delivery. The Core network and NG9-1-1 services are designed to support very large volumes with geographic diversity of both network and services. The end result is a network that is public safety grade in terms of capacity, reliability, scalability, and redundancy.

The NG9-1-1 functions and services are extensible and scalable based on the component architecture approach and application server complex models. Ingress paths to end sites are expandable by adding IP network connectivity to each site and the NG9-1-1 functional components. Additional sites may be added to the network by connecting them to the ESInet cloud. The Core i3 systems of the solution have high capacity Ethernet connectivity to the redundant IP carriers serving the state ESInet. The Emergency Call Routing Function (ECRF) and Emergency Call Routing Function (ESRP) components are designed to handle significantly more traffic than planned for Alabama, and their redundant and geographically distributed architecture provides a highly available application environment.

Any requirements to increase capacity beyond initial deployment are strictly limited to business contractual agreement. The architecture elements, interworking protocols, and network connectivity lend themselves to expansion while still achieving high reliability processing.

### **Change Management**

The AT&T ESInet utilizes an IT service management suite for managing service events. The Change Management module tracks changes in system hardware and software versions. Upgrade events can be tracked via the Change Management module to establish a full version history of the system.

### **Configuration Management**

AT&T ESInet network configuration management tools perform the following functions:

- Detect and report on configuration policy violations to provide compliance with corporate standards
- Utilize configuration templates and command templates, custom scripts, and configuration changes to provide consistent implementation of network configurations across similar site types
- Simultaneously modify configurations, change community strings, update ACLs, and block MAC addresses across many devices
- Compare start-up and running configuration files to troubleshoot device configurations issues
- Automatically check all network elements for changes and perform backup for all changed network device configurations on a daily basis

### **Transition Management**

The AT&T ESInet solution provides relevant professional services and support to assemble, configure, and deliver the required solution. From initial award of the project to the go-live of any of the PSAPs, project implementation services are provided to ensure that customer needs are met. We typically provide the following implementation services as part of a turnkey solution:

- Project Management
- System Design and Architecture
- System Deployment and Installation
- Configuration
- Testing
- Training

- Final Deployment and Acceptance Testing
- Maintenance and Technical Support Services

In most installations we perform a pre-staging program to ensure that the solution to be installed performs adequately before on-site deployment. A complete System Deployment and Installation Plan will be designed and implemented. This plan aims to:

- Guide the technical team during all the stages of the project and support technical decisions
- Set configurations and installation details for the different components to be deployed
- Facilitate troubleshooting of applications and system configurations
- Support testing process of overall systems
- Facilitate the integration of all the solution components
- Manage all the issues and problems before and after the cut-over
- Document and trace registered problems

We use a structured approach to migrate the customer into the new system. This is reflected in a cutover plan that serves as a checklist or guide to our cutover team to ensure that the system is ready to go live. The focus of the system migration strategy is on the activities, tasks, and timing of the days prior to going live on the new system.

Every cutover plan comprises a series of tasks to be performed in the appropriate sequence to ensure system readiness. It provides the basis for the approval of 'go-live' and uses the new system to enter 'live' data and transactions.

## 6.2 HELP DESK

Commented [s58]: AT&T input required

Respondents shall provide help desk services as a component of their proposed solution.

The help desk(s) shall operate on a 24x7x365 basis and be adequately staffed by resources who are trained and qualified in help desk and customer support services.

The help desk shall serve as a single point of contact for all matters, including without limitation, the system, all components of the system, and any additional system service providers delivering services or components for the network ecosystem.

The help desk must not use an automated attendant or other automated means to answer calls for service or trouble.

The help desk must be accessible via various methods including voice, text, email, and other means as deemed appropriate by the Board.

The help desk shall have the ability to communicate directly and immediately with maintenance and support services for the proposed system and all components of the proposed system, including without limitation, network troubles.

Respondents shall describe and explain their proposed help desk services.

**AT&T Response:**

Comply.

As described above, AT&T provides dedicated customer support service centers that also support help desk functionality. The staffing of the 911 NRC and the West NOC is a mix of management and occupational employees. PSAP customers contacting the AT&T 911 Resolution Center will interface with 911 trained employees when addressing their trouble report or request. Technical managers in the West NOC are trained in 911 specific networks with an emphasis on call routing. The AT&T 911 technical operations staff will use traditional TDM monitoring systems in addition to NG911 systems and vendor tools. In support of the NG911 network the 911 RC and West will utilize the expertise of AT&T IP organizations for advanced trouble resolution and support.

**6.3 TROUBLE HANDLING AND TICKETING REQUIREMENTS**

Trouble handling and trouble ticket tracking services will be required.

To ensure that all trouble tickets are resolved in a timely manner, respondents shall propose an escalation guideline document that describes the escalation procedure.

Commented [e59]: AT&T to respond

The current ANGEN system utilizes the following procedures. Respondents may use this as a guide for their proposed system.

- 1. Critical – Network outage**
  - 1st Level Support – Within 15 minutes
  - *Continuous problem resolution/workaround effort*
  - 2nd Level Support – within 2 Hours
  - 3rd Level Support – within 4 Hours or upon Customer request.
  
- 2. Major – Service effecting**
  - 1st Level Support – Within 15 minutes
  - 2nd Level Support – Within 4 Hours
  - 3rd Level Support – Within 24 Hours or upon Customer request.
  
- 3. Minor – Non-service effecting**
  - 1st Level Support – Within 30 minutes
  - 2nd Level Support – Within 1 business day
  - 3rd Level Support - Within 1 week or upon Customer request.

4. **Planned Maintenance/Informational** – Software update, configuration.
- 1st Level Support – Within 2 Hours
  - 2nd Level Support – Within 5 Business days
  - 3rd Level Support – Only upon Customer or Management request.

Following any critical event or major outage, the Board must receive a root cause analysis within five (5) business days.

Respondents shall provide a description of their root cause analysis process and what documentation is provided upon the conclusion of the analysis.

Respondents shall describe their trouble management and ticketing process.

Respondents shall provide details of how trouble tickets are generated, documented, resolved and reported.

**AT&T Response:**

Comply.

The AT&T NOC and help desk will continue to support the State of Alabama as it does today. Our Network Operations Center operates 24/7/365. The AT&T E9-1-1 NOC is the single point of contact for the State and all Alabama Public Safety Answering Points. The center is responsible for timely resolution for all PSAP ESI network related issues. AT&T utilizes dedicated resolution centers to handle 911 maintenance for the State of Alabama. The 911 Resolution Centers (911RC) are the single point of contact for 911 customer trouble reporting. This 911 centers coordinate documentation, dispatch and resolution for the 911 center trouble report and is the status group for any reroute requests that the 911 customer may have. Both of these centers are 7X24 and have disaster recovery plans in place that include physically diverse alternate locations. These centers coordinate with other AT&T organizations in response and resolution of 911 impacting troubles. State or PSAP customers contacting the AT&T 911 Resolution Center will interface with 911 trained employees when addressing their trouble report or request. Technical managers in the 911 Network Reliability Center are trained in 911 specific networks with an emphasis on call routing.

The AT&T proposed solution includes built-in switch alarms that will notify designated AT&T of any system issue. AT&T will monitor the network services 24/7/365 via a suite of monitoring tools. AT&T will notify the appropriate State personnel in the event of major/critical outages. The AT&T solution includes remote monitoring capability using a secure VPN tunnel to provide 24x7 real time remote monitoring. AT&T uses advanced network management tools allow for remote control and remote system management. It collects and stores user-defined performance counters, and stores event log messages, performance data, and configuration data in a centralized database. System thresholds, established during service implementation, are continually monitored by AT&T. Any time the system performance/environment exceeds the threshold limit, AT&T is immediately notified via alarm. Alarm signaling provides specific

information relative to the nature of the alarm allowing proper, expeditious troubleshooting. AT&T uses the industry's leading remote utilities for monitoring, diagnosing, troubleshooting and repairing many of the errors previously handled on site. By using element monitoring agents and implementing various monitoring tools, AT&T has the ability to analyze issues in real-time, design the appropriate plan for resolution and complete the resolution.

#### 6.4 TRAINING

Respondents shall work cooperatively with the Board to ensure training programs are conducted for the proposed solution. Respondents shall provide training for the network operations and support functions including:

At the PSAP:

- Network Status Reports
- Help Desk
- Text to 9-1-1 operation
- Trouble Ticketing

At the AL9-1-1 Board

- Network Status Reports
- Help Desk
- Trouble Ticketing
- Root Cause Analysis and review

Respondents shall provide a proposed training plan and sample documentation and materials for the training detailed above.

**AT&T Response:**

Comply.

Training will be provided to the PSAP's and the AL911 Board for the proposed solution. The training will be comprehensive and will allow the PSAP's and the AL911 Board to understand the operational characteristics of the system and the tools available for overall system management. Training will include Network Status Reports, Help Desk, Text to 9-1-1 operation, Trouble Ticketing and Root Cause Analysis/Review (AL911 Board).

We provide extensive training packages to support the rollout of NG9-1-1 systems including comprehensive training on AT&T ESInet Routing, AT&T ESInet ALI Management, metrics tools, and database management service support tool training to customer-designated users. Through detailed analysis and review processes, the specifications and methodologies for technical and non-technical requirements have been selected so that training courses and materials are tailored to suit the specific State system and minimize operational impact on the end users and staff. We also provide appropriate training to telephone service providers to supplement TSP support information available on line.

The training plan for the State is progressive in nature. The sequence of courses leads the trainees from a generalized overview to a more comprehensive understanding of the components within the system, respective to each user's area of responsibility.

Training sessions are designed to allow trainees to understand and effectively interact with AT&T and the web-based tools to maximize benefits of the system and tools for the State. This is achieved by integrating well-designed technical documentation, practice exercises, and instruction into the overall training experience. We will provide a comprehensive set of training materials for each trainee.

### **Standard Customer Training**

AT&T ESInet training is provided to State-designated users. These classes are offered in a web-conference style, allowing the attendees to receive the full benefits of an instructor-led program without the additional cost of travel and lodging. Optionally, we can provide on-site and/or customized training at an additional fee.

### **Supplemental Training**

We are committed to maintaining current training activities and documentation and providing additional training as needed. As technology continues to develop over the duration of the contract, supplemental training is critical to introduce users to new and enhanced services. We view the State as a partner in overseeing the quality of the training and making ongoing recommendations for improvement.

### **Optional Training**

We will work with Alabama to scope, design, develop, and deliver any additional AT&T ESInet training desired by the State, including pertinent optional classes or training as it becomes available.

## **6.5 MONITORING OF APPLICATIONS AND EQUIPMENT**

Proposed solutions will require proactive monitoring of all system components for operation, performance and fault conditions.

The proposed solution shall ensure that all alarms including environmental status alarms are received and monitored in a Network Operations Center (NOC).

Respondents shall describe the tools, methods and procedures that will be used for monitoring.

Respondents shall include a matrix of components that will be proactively monitored, managed and administered.

**AT&T Response:**

Comply.

The AT&T ESInet Dedicated Network Operations Center (NOC) is staffed 24 hours a day, seven days a week, 365 days a year to actively monitor and manage the AT&T ESInet associated services and connectivity to the Alabama network. When a potential or actual Customer-affecting issue is defined and determined to be an incident, the Incident Administration team is engaged by the NOC. The team uses established processes that are ISO 9001:2008-compliant for immediate escalation, notification, resolution, and reporting.

**Commented [e60]:** AT&T to replace with customer facing language.

**Commented [TMA61R60]:** West merge final update. 2/29/16. DONE.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. Traditional network management is complemented by active application monitoring and alerting. The AT&T ESInet application elements also report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

All network elements are monitored with SNMP at the NOC. This includes LNGs, ESRPs, ECRFs, BCFs, and PSAP site equipment.

The NOC monitors and tracks net flow statistics and performs packet level capture and forensics at the AT&T ESInet Core sites. There are currently two varieties of monitoring systems in use at the NOC. One provides a "single pane of glass" for network and system status. This provides SNMP trap and syslog receiver capabilities. These systems also provide ICMP and SNMP trending and threshold alarming. The second type of system provides packet capture, display, and troubleshooting capabilities. The second type of system provides packet capture, display and troubleshooting capabilities.

IP SIP calls are received at SBCs located at major POP locations. Standard SIP monitoring via SIP "Options" messages exists between the call control application at each Core site and each ingress and egress SIP processing entity.

IPSLA testing is established between the routers at each network element and between each PSAP site and each Core site. This includes transport layer testing and monitoring with VPN GRE tunnels and BGP route viability. PESQ is measured at the Core sites and is associated with SNMP alarms via threshold levels.

Application level testing is accomplished between a custom developed management operations application and the Core. Application level tests and test calls are also created to PSAP end points. The management operations application is redundant and exists at each Core site. With an IP PSAP, test calls utilizing SIP are established to the PSAP CPE ESRP elements.

Following is a matrix of components that are proactively monitored, managed, and administered.

Location	Components
LNG	LNG, SS7 MGC, Routers
ALI Site	ALI, LIS
CSS Site	Database Servers, Log Indexing, Log Collector, MOP, Reports Database, Management Portal, Monitoring
Core Site	Voice Tools, IDS, Data Tools, Edge Routers, Firewall, SBC, Core Routers, Call Distributor, ECRF, Third Party ALI Interface, ECRs, Media Servers, Database Servers, Terminal Server, DNS
PSAP Site	AT&T Routers

### Alarming

The AT&T ESInet application elements report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. The AT&T ESInet application elements also report internal subsystem and adjacent subsystem failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution. The production servers have monitoring agents installed on them that are used for hardware, operating system, and application monitoring/alerting.

The NOC processes alarms and categorizes them as normal, warning, minor, major, and critical alarms. The definitions are defined by Engineering and Operations appropriate to the monitored device or application. Responses to alarms in the form of alerts are enacted based on the severity categorization of the alarm and the associated support model.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened.

We are capable of alarm suppression by time, quantity and a combination for reducing alarm notifications. For example we can say “no more of a certain alarm for the next 30 minutes” or we can say “send me duplicate alarms every 5 minutes.

Notifications are delivered in multiple ways: SMS, SMTP, Syslog collection, and to the NOC operator consoles.

- A monitored system sends a trap upon the observation of a predefined event in a monitored service
- Agents run local to the monitored service and do logfile analysis, process analysis, and performance analysis

- Polling occurs to monitor for availability of service
- The polling and local agent analysis intervals vary by device, but typically range from 5 seconds to 5 minutes as defined by the supporting team of that device
- System log retention of 180 days can be configured. The system log data can be filtered and sorted.

Remote monitoring of network and computer performance is conducted to provide statistical data on the number of alarms received and reported based on severity.

## 6.6 NETWORK OPERATIONS CENTER

The proposed solution requires the services of a Network Operations Center (NOC).

The NOC must operate on a 24x7x365 basis for the duration of the contract.

In addition, the NOC shall include the capability to perform remote maintenance and restoration of alarms as necessary.

The NOC shall be the single point that performs continuous monitoring, maintenance and network support services.

The NOC shall interface with the help desk.

The NOC shall be staffed with appropriate technical resources to aid trouble shooting, diagnosis and recovery from issues.

The NOC shall perform monitoring of the entire network, all connections and functional components used to provide ANGEN services.

The NOC shall be equipped with a Network Management System (NMS) that monitors the performance of the network and infrastructure.

- The NMS shall continuously monitor the performance and availability of all devices
- The NMS shall monitor network performance, including throughput, latency, jitter, packet loss, and other parameters deemed necessary by the Board
- The NMS shall monitor the network for network intrusion attempts security breaches and be capable of issuing security alerts when an event is recognized
- The NMS shall create alarms based on thresholds and parameters and distribute alarm notifications appropriately
- The NMS shall monitor the environment at all data centers or points of presence where critical network components are housed to ensure functionality
- The NMS shall monitor ancillary network components such as power utilization and backup power systems

Respondents shall describe the capabilities of their proposed NOC, including the proposed NMS system and provide details regarding its operation and the ability of the NOC to interface with other providers and systems.

**AT&T Response:**

Comply. [The AT&T ESInet] Dedicated NOC represents North America's single largest and most advanced 9-1-1 support center and network monitoring facility dedicated solely to monitoring and managing 9-1-1 processes and system elements. The NOC operates 24x7x365 and provides proactive, real time monitoring of the solution. The NOC leverages highly sophisticated monitoring tools to make sure the systems and networks are maintained to the highest quality and availability.

Remote monitoring of network and computer performance is conducted to provide statistical data on the number of alarms received and reported based on severity. The NOC uses the monitoring tools to capture the elements of a complex end-to-end service environment, such as network elements, computer systems, databases, and the applications themselves. NOC staff can monitor the complex dependencies among these managed elements and alert the appropriate group for interpretation. This provides a method to immediately notify designated personnel of any system failures.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. Delivery of monitoring reports, including bandwidth utilization and connectivity are provided as mutually agreed upon during contract negotiations. Traditional network management tools are complemented by active application monitoring and alerting. The AT&T ESInet application elements will also report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

In addition, the NOC provides continuous system support and monitoring 24x7 to each ALI node and to the database management system. The NOC also monitors all PSAP connections into the ALI nodes at the application level. Staffing in the NOC is second to none in the industry with Tier 0 through Tier 2 support staff on duty 24x7x365.

The following are key highlights for the network management system (NMS):

- The five state levels from NMS are as indicated: Critical, Major, Minor, Warning, and Normal
- We provide notification to the 24x7x365 NOC
- We provide notification by email and SMS
- Notification levels are defined by the supporting entity

**Commented [e62]:** AT&T to review and revise this response per the SOW and AT&T support services.

**Commented [TMA63R62]:** Liz, are there statements in the response that are not in scope of the SOW? Not sure I fully understand your question.

- We are capable of alarm suppression by time, quantity and a combination for reducing alarm notifications. For example we can say “no more of a certain alarm for the next 30 minutes” or we can say “send me duplicate alarms every 5 minutes”
- Alarms we typically process are SNMP traps, local agents and polling
  - A monitored system sends us a trap upon observation of a predefined event in a monitored service
  - Agents run local to the monitored service and do logfile analysis, process analysis, and performance analysis
  - Polling occurs to monitor for availability of service
  - Polling occurs to monitor for availability of service

We conduct major and minor planned and critical un-planned events for all AT&T ESInet services, system maintenance, or upgrades that may impact the State of Alabama or any of Alabama’s NG9-1-1 Customer PSAPs. We fully manage and complete these events with a trained event management team, facilitating the change implementation, monitoring, and communication through the length of the event. Event team personnel will keep the State informed of event progress. AT&T adheres to stringent, internal event plan processes and procedures to include step-by-step execution procedures with the associated time frames, back-out procedures, and baseline and validation testing. We will include the required back-out time within the scheduled maintenance time-frame.

We will notify the State’s single point of contact in writing concerning scheduled release installations. Acknowledgement of notification is required from the State. AT&T will send an email notification to the State at the start and end of the pre-arranged maintenance interval.

AT&T will provide all necessary resources to successfully perform and complete the maintenance.

## 6.7 ALARM CATEGORIES

The proposed solution shall provide categories of alarms by event types depending on the criticality of the event (i.e. critical, major, etc.).

The proposed system shall allow for the dynamic configuration of notification thresholds as well as the ability to define new alarm categories as necessary.

The system shall provide for the automatic notification of the NOC when alarm conditions are detected.

Different notification and escalation procedures may apply depending on alarm category.

Respondents shall describe how alarms are received and specify what types of alarms are available for viewing/receiving and how and when they are generated.

### AT&T Response:

Comply.

The AT&T ESInet application elements report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

Commented [TMA64]: West final merge update. 2/29/16. DONE.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. The AT&T ESInet application elements also report internal subsystem and adjacent subsystem failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution. The production servers have monitoring agents installed on them that are used for hardware, operating system, and application monitoring/alerting.

The NOC processes alarms and categorizes them as normal, warning, minor, major, and critical alarms. The definitions are defined by Engineering and Operations appropriate to the monitored device or application. Responses to alarms in the form of alerts are enacted based on the severity categorization of the alarm and the associated support model.

Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened.

We are capable of alarm suppression by time, quantity and a combination for reducing alarm notifications. For example we can say "no more of a certain alarm for the next 30 minutes" or we can say "send me duplicate alarms every 5 minutes.

Notifications are delivered in multiple ways: SMS, SMTP, Syslog collection, and to the NOC operator consoles.

- A monitored system sends a trap upon the observation of a predefined event in a monitored service
- Agents run local to the monitored service and do logfile analysis, process analysis, and performance analysis
- Polling occurs to monitor for availability of service
- The polling and local agent analysis intervals vary by device, but typically range from 5 seconds to 5 minutes as defined by the supporting team of that device
- System log retention of 180 days can be configured. The system log data can be filtered and sorted.

Remote monitoring of network and computer performance is conducted to provide statistical data on the number of alarms received and reported based on severity.

## 6.8 SCHEDULED MAINTENANCE

The proposed system requires a scheduled maintenance process.

The process must include a methodology for coordinating and scheduling preventative maintenance activities and how those events are executed.

During scheduled maintenance activities the network and system shall not experience a degradation or disruption.

However, individual components may be taken down for maintenance if an alternate route or redundant system is used to minimize the effect.

Respondents shall describe how their schedule maintenance process will work.

### AT&T Response:

Comply. Maintenance of the AT&T ESInet is done with no scheduled downtime. AT&T schedules planned events for routine and preventative maintenance in ways such that 9-1-1 operations are not impacted. A notification of the upcoming event will be sent to the State as applicable. AT&T fully staffs and manages planned events with a trained event management team, facilitating the change implementation, monitoring, and communication through the length of the event.

AT&T conducts major and minor planned and critical un-planned events for all NG9-1-1 Services system maintenance or upgrades that may impact the State of Alabama. Event team personnel will keep the State informed of event progress. We adhere to stringent, internal event plan processes and procedures to include step-by-step execution procedures with the associated time frames, back-out procedures, and baseline and validation testing. AT&T includes the required back-out time within the scheduled maintenance time frame.

We will notify the State's single point of contact in writing to schedule release installations. Acknowledgement of notification is required from the State. AT&T will send an email notification to the State at the start and end of the pre-arranged maintenance interval.

AT&T and the State will provide all necessary resources to successfully perform and complete the maintenance.

## SECTION 7 ELECTRICAL, WIRING, AND CABLE REQUIREMENTS

### 7.1 ELECTRICAL

Successful respondents shall provide and maintain all electrical, wiring, and cable services necessary for their proposed system.

Successful respondents shall provide electrical services as follows:

- Supply and install where needed and otherwise maintain existing complete electrical power distribution system for all equipment supplied.
- Provide adequate surge protection, grounding and lightning suppression devices to protect equipment from unnecessary interruption.
- Provide and maintain a minimum level of thirty (30) minute uninterruptible power supply for all equipment supplied.

Respondents shall provide all necessary cabinets, tables, stands, or other required mounting facilities for their proposed system.

Respondents shall adhere to FCC and all local codes and ordinances in all matters pertaining to the work.

#### AT&T Response:

Comply.

AT&T ESnet core services equipment is powered from the building 48 VDC battery power plant which meets all of the surge suppression, noise filtering and backup time required. AT&T expects to conduct PSAP site surveys to determine environmental requirements and equipment needs.

AT&T assumes that existing ANGEN datacenters are fully compliant with all applicable electrical requirements listed in this RFP.

### 7.2 ELECTRICAL INTERFERENCE

All devices proposed for the system shall be provided with any and all necessary connecting cords and cables conforming to National Electrical Manufacturers Association (NEMA) codes.

The system shall not cause interference to the existing radio, security, or closed circuit television communications systems, installed communications console equipment, or other data processing equipment present in the operational environment, and, in addition, shall comply with all applicable FCC standards as applied to data processing equipment.

Commented [TMA65]: Need ABFS and TSC review here.

Need help to research environmental characteristics of our AT&T strategic datacenters operate on DC power?

**AT&T Response:**

Comply.

**7.3 WIRING AND CABLING**

All interface connections and visible cables shall use standard EIA connectors secured by wall plates where exposed.

All cables shall be clearly marked and/or numbered in a manner that reflects a unique identifier of the cable at both ends.

Any cables used shall be plenum rated where required by local building or fire codes.

Respondents shall ensure that all equipment is connected to emergency AC power and is configured to be supported by a UPS.

Cabling, communications outlets, power wiring, system grounding, conduit facilities, and equipment rooms shall be installed in accordance with national standards and applicable local codes.

Minimum standards used in the installations shall include, but are not limited to, the following:

- ANSI/TIA/EIA-568 - Commercial Building Telecommunications Wiring Standard
- ANSI/TIA/EIA-569 - Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA/EIA-606 - Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- ANSI/TIA/EIA-607 - Commercial Building Grounding and Bonding Requirements for Telecommunications
- Building Industry Consulting Service International, Telecommunications Distribution Methods Manual
- National Electrical Code (NFPA-70)
- FCC Rules and Regulations, Parts 68 and 15

**AT&T Response:**

Comply.

Wiring and cabling will be installed per ATT-TP-76450 (Appendix).

**Commented [TMA66]:** Sonya, need to locate this document in the state of IN bid response.

#### 7.4 GROUNDING

The proposed system shall provide surge and lightning protection for all connections to AC power.

All hardware and peripheral devices shall be mechanically and electrically grounded to prevent both user hazard and loss of data or hardware integrity due to external electrical impulse.

Respondents shall ground all equipment in compliance with manufacturer recommendations and applicable standards.

Respondents shall furnish and install the required grounding and bonding conductors where necessary and complete the connections to the grounding system at all sites.

#### AT&T Response:

Comply.

Grounding is performed per ATT-TP-76200 (Appendix). Infrastructure bonding will be accomplished according the ANSI/TIA/EIA-J-STD-607-A, via the following elements: a telecommunications main grounding busbar (TMGB), telecommunications grounding busbars (TGB), telecommunications bonding busbars (TBB), grounding equalizers (GE), and a bonding conductor for telecommunications (BCT). Components to be bonded as such will include: racks, enclosures, ladders, surge protectors, cable trays, routers, switches and patch panels.

The State will be responsible for grounding the system to the building ground and interfacing the system with any third party systems.

#### 7.5 TRANSIENT VOLTAGE SURGE SUPPRESSION

In addition to primary protection, secondary Transient Voltage Surge Suppression (TVSS) shall be installed with the proposed system where appropriate.

Respondents shall implement TVSS that meets the following criteria

- TVSS devices shall be installed on all equipped ports that are connected to; or may be connected to wireline or wireless facilities.
- The secondary TVSS devices shall be listed with a maximum clamping voltage of 250 volts (.5kV) or less and operate in less than 10 nanoseconds.
- All TVSS devices shall meet UL497A requirements and shall have an operational indicator to alert maintenance personnel that the device has been utilized, failed or that the circuit is unprotected.
- The secondary TVSS shall not degrade the audio signaling.

**AT&T Response:**

Comply.

Per ATT-TP-76200, all such surge protectors deployed in the AT&T Network must be listed by a NRTL to the following standards:

- Primary Protectors UL 497
- Secondary Protectors UL 497A
- Data Protectors UL 497B
- Coax Protectors UL 497C
- Antenna Lead in Protectors UL 497E

Surge suppression devices also must meet the standards spelled out in Telcordia GR 974, 1361 or 3154.

AT&T will install Transient Voltage Surge Suppressors at MDF and IDF locations that face outside plant cables. These devices shall be United Laboratories (UL) listed as TVSS or Transient Voltage Surge Suppressors. These devices shall meet or exceed UL standard 497A and have an operational indicator as required. Audio signaling shall not be degraded.

**SECTION 8 PROJECT MANAGEMENT AND PLANNING REQUIREMENTS**

**8.1 IMPLEMENTATION PROJECT PLAN**

Respondents shall provide a project management plan that identifies the methodology for implementing their proposed solution. The implementation project management plan shall be consistent with Project Management Institute (PMI) best practices.

At a minimum the implementation project plan must include:

- Schedule.
- Change management plan.
- Configuration management plan.
- Communications plan.
- Quality Assurance and Quality Control plan.
- Risk management plan.
- Status report and dashboard tools.
- Proposed Site by site implementation/work plan

The Project Plan will be referred to on a regular basis during the implementation phase of the project to ensure that implementation is completed in a timely fashion.

Any changes to the schedule and work plan must be communicated to the Board through the proposed Change Management process.

The project plan shall clearly define the milestones and clearly identify when the transition from implementation into service management occurs.

**AT&T Response:**

Comply. Taking into account the State's needs and the constraints of the TSPs serving the State, the Project Manager creates an Implementation Project Plan and milestone schedule tailored to the needs of the State's operations with mutually agreed-upon time frames. Project management duties include and are not limited to:

- Assemble and chair the teams involved in the implementation
- Manage, coordinate, and monitor the implementation activities
- Manage the change control process
- Identify and escalate project obstacles
- Support quality and acceptance in all areas of the project
- Coordinate compliance with test criteria
- Transition completed solution to the 24x7x365 support organizations
- Meet/exceed the State's needs regarding documentation
- Participate in the cutover readiness review
- Direct and monitor all cutover activities
- PSAP Trunks
- Numbering plan digit (NPD) assignment (if appropriate)
- Trunk assignments by call type (wireline, wireless, VoIP, or any combination)
- Route Lists/Routing Rules:
  - Primary and alternate routes
  - Star code destinations for first responders, PD, Fire, and EMS
  - Fixed bridge lists and star code assignments
  - PSAP Abandonment routing rules

We will work cooperatively with each TSP to gather and confirm information necessary to support data provisioning and trunking from the end office to the AT&T ESInet system, including the following data:

- Incoming signal type
- Call type

- Default PSAP

Throughout the duration of the project implementation, the Project Manager will keep Alabama and the PSAPs apprised of ongoing project status via regular project team meetings. We pride ourselves on customer satisfaction and encourage the use of project team meetings as a forum for continual feedback on performance. With this feedback, the Project Manager can refine the implementation plan or take necessary action so that the final NG 9-1-1 solution implementation meets the State's and PSAPs' expectations.

We will manage a coordinated and secure staged implementation approach that minimizes risk because each stage is planned, implemented, and tested sequentially and independently for functional and operational efficiencies. The implementation project will be managed by the Project Manager via a formal Implementation Project Plan.

Once the implementation process is complete, calls route through the AT&T ESInet Routing complex, eliminating the need for the existing selective routers, other than any potential services the S/Rs provide with agencies outside the State.

#### Cost and Schedule Control

AT&T reviews all major projects on a monthly basis for cost and schedule progress. The schedule is maintained using Microsoft Project and cost monitoring is done using Oracle Applications for actual/to-date information and a combination of Microsoft Project and Microsoft Excel for Estimate-To-Complete (ETC) information.

#### Change Management

Changes are submitted to a Change Control Board (CCB) for a change event approval. The CCB is a committee that makes decisions regarding whether or not a change should be implemented. The Change Control Board consists of project and product stakeholders or their representatives. We manage all aspects of change management through the CCB approval process including availability, capacity, configuration, incident, problem, release, service-level and IT Service continuity management.

There are four categories of changes:

Change	Description
Minor Change (Severity 4 Change)	A cosmetic flaw or minor problem to a component of the application that does affect usability or functionality
Planned Event	Any upgrade, enhancement, or configuration change to a production system or network. A planned event has a minimum of five (5) business days to submit an event plan to the CCB.
Emergent Event	An upgrade, enhancement, or configuration change to a production system or network that requires attention in less than five (5) business days.

Change	Description
Incident Change	In progress or imminent issue has been identified that requires immediate action. Does not require change goes through the same process as a planned event. All incident changes are documented for tracking purposes and reviewed.

Table 3: Change Management Change Categories

For a Planned or Emergent Event to receive approval there must be an event plan submitted to the CCB. The event plan must include a step-by-step guide of changes being made and clearly state the impact of the change. All event plans must also include a detailed validation plan and back-out plan in compliance with implementation plan standards and approved by the CCB Stakeholders. All event resources are clearly listed and verified ahead of time. New application code is never to be loaded without it being officially released by QA. We will provide written notification and release content (when applicable) to the State of Alabama.

If the event is closed as unsuccessful and the back-out plan was enacted, the issues which caused the event to be unsuccessful are documented. A new event plan and subsequent change must be submitted for re-approval by the CCB.

The CCB also documents and stores each event for tracking and reporting purposes. The CCB logs all planned and emergent event change requests on events that are both approved and declined. We also reviews and issues Reason for Outage (RFO) reports when outages occur.

In addition to planned and emergent events, we also maintain a problem management system for tracking and reporting trouble. AT&T provides a service portal for opening trouble tickets, change requests and checking status of existing items. We can also provide monthly trouble reports showing tickets opened, resolved and unresolved.

### Communication Plan

AT&T has a Communication Management process that is followed for every project. Depending on the phase of the project, the Project Manager will provide either a bi-weekly or weekly status report. In addition, there will be bi-weekly or weekly (depending on the phase) conference calls with minutes distributed. Email correspondence will be used as well as phone calls as necessary, which will be followed up with written documentation.

The communication plan is put into action immediately through preparation and facilitation of a project kickoff meeting. Following the kick-off meeting, the Project Manager facilitates ongoing implementation planning, design, and requirements definition meetings with the State and the affected telephone service providers to ensure successful and timely implementation.

During the maintenance period, the Program Manager facilitates regularly scheduled operations meetings and periodic formal reviews with the State to monitor general status and trends, receive customer performance reviews, obtain customer feedback, and address any questions or concerns.

## Risk Management

The AT&T ESInet systems are highly robust and tested extensively prior to release. In any implementation and cutover, there are always risks. We have event plans that are used to mitigate the risks. In addition, we have checkpoints built into the event plan to ensure a smooth deployment. We utilize a risk register to identify any potential risks and to ensure closure.

## Sample Alabama Project Plan

Attached is a sample high-level project plan for the proposed project.



ANGEN ATT ESInet  
Implementation and F

**Commented [e67]:** Updated Project plan with implementation timeline over PSAPs 1 – 118.

**Commented [TMA68R67]:** Need review by John Metzger and Rick Caldwell.

The bar chart below depicts a proposed project timeline.



## 8.2 SYSTEM TEST PLAN

System testing of any new implementations will be required prior to the Board authorizing any cutover to full operational status and the commencement of payment for services.

Respondents must anticipate and plan for all necessary system testing for each service, component, function, application or piece of equipment comprising the proposed solution.

The proposed test plan shall include, but not be limited to testing for:

- i3 functional element testing
- ESInet throughput and capacity testing
- ESInet end to end connectivity testing
- Fault tolerance testing
- ESInet failover and alternate route testing
- ESInet monitoring systems
- Fault notification
- Firewalls, intrusion detection systems, intrusion protection systems

Respondents shall provide an example system test plan that tests each element of their proposed system.

**AT&T Response:**

Comply. The Acceptance Test Plan (ATP) will be customized to include Alabama's specific requirements as the formal process for ensuring that each system component functions as required. In addition, the plan is designed to demonstrate that the individual components, when combined as described in the proposed solution, meet expectations.

The Acceptance Test Plan includes test cases based on the operational, functional, and integration requirements of the system. Although some of the test cases will be executed in an environment that will normally operate behind the scenes, test cases/scenarios will be documented and provided to the customer upon request.

In most cases before implementing any testing procedure we validate and approve its content with the customer's Project Management team. Most of the onsite acceptance testing will be conducted by subject matter experts designated by the customer. AT&T ESInet staff will be available to provide direction, answer questions, and assist in documenting the test results. User acceptance test overview sessions will be held to familiarize the customer subject matter experts with the testing methodology and the acceptance test forms that will be used to document the test process.

We will provide the PSAP with a list of standard acceptance tests to demonstrate feature functionality of the AT&T ESInet Routing services to include:

- Correct routing of calls, including various call types
- Call hand-offs, transfers, and bridging functions
- Operation of the system Core and the provisioning elements
- Configuration of network elements
- Selective routing
- Trunk only routing
- PSAP abandonment routing
- Alternate routing
- Default routing

Sample test plans are provided as attachments, below.



Sample AT&T ESInet Acceptance Test Plan



i3\_ESRP\_Interoperability\_Alpha\_Testing.c

**Commented [e69]:** AT&T to customize with logo, copyright info, etc.

The AT&T ESInet team will work collaboratively with PSAP representatives to modify this test plan to meet the needs of the PSAP. This may include the addition or removal of test cases as needed or desired. Once the test plan is completed and agreed upon, the testing team will work with the PSAP to determine the test protocol specifics, such as order of calls. We will work with the PSAP to schedule the testing, but limit time of day to normal business hours, unless otherwise negotiated.

We will manage the testing process and coordinate all test calls documented in the test plan. This testing is scheduled in accordance with each PSAP's availability. The PSAP is required to provide a resource to answer the test calls and provide documentation (i.e., screen prints and recordings) for certain calls. Once the System Acceptance Testing is completed the Site is officially accepted and standard warranty and maintenance services start.

The following list is an example of call tests for specific policy routing functions. Call tests are generally performed three times, proving the network connectivity is established and voice is delivered and received. Call completion as expected is the acceptance criteria unless otherwise negotiated.

- Call Routed to PSAP
- No Record Found-PSAP Is Default
- No Record Found: Valid PSTN is Default
- Secondary Transfers
- Fixed Bridge List Test: Valid PSTN ID
- Manual Bridge Test: Valid PSTN ID
- Abandonment Routing
- Abandonment Routing: Valid PSTN ID
- Alternate Routing
- Alternate Routing: Valid PSTN ID
- Abandoned Call: Valid ANI

This testing instance will ensure that the proposed system for a specific location is ready to go into production. System Acceptance Testing will be implemented at each site to be deployed. Once the System Acceptance Testing is completed the Site is officially accepted and standard warranty and maintenance services start.

The System Acceptance Testing will be used to accept site installations over the lifecycle of the project.

### 8.3 TRANSITION PLAN

The results of this procurement may require a transition from current ANGEN systems, services and providers to new or different systems, services and providers.

Respondents must anticipate and articulate a plan for the implementation, testing and transition of their proposed systems or services to the point of full operational readiness and cutover to full operation.

This plan may need to anticipate the integration with other systems, services and providers that will comprise the ANGEN system depending on what solutions or services a respondent proposes to provide.

Respondents must provide a proposed transition plan for their systems or services in their response that address the following areas at a minimum:

1. Transition schedule including milestone dates for design, development, testing and implementation phases necessary to achieve full operational readiness and cutover to full operation
2. System testing approach
3. Site cutover approach
4. Contingency or roll back plans should implementation or integration failures occur during the transition or cutover of the proposed systems or services
5. Identification of risks, dependencies or interdependencies that may impact the transition to full operational status and cutover
6. Identification and definition of the ability to support a phased migration and parallel operation with current ANGEN operations

Throughout this anticipated transition period, current ANGEN wireless 9-1-1 call delivery, existing features, functions, capabilities and operations must not be limited or impacted in any fashion by the Respondents.

Respondents are required to work closely with other providers and to cooperate to the fullest extent possible in order to accomplish successful transition to the new ANGEN systems and services created by this RFP.

#### **AT&T Response:**

Comply. The Solution Delivery Life Cycle approach to plan, configure, network engineer, implement, test, document, train, and support AT&T ESInet services follows the a time-proven Solution Delivery methodology. The lifecycle begins with solution definition and architecture activities. During these initial phases, the joint AT&T and Customer team members verify system application and implementation requirements, refine the solution architecture, and finalize the plan for solution deployment. Following definition and architecture phases, the team orders, installs, configures, tests, and trains users on customer-facing solution

components as part of solution integration and deployment effort. Following successful deployment, the maintenance phase begins.

The project supports the PSAP or the Board in transition to AT&T ESInet services and in the migration to i3. The project team will also work with Alabama on the following designs and plans:

- ESInet design and implementation including call overflow and management
- Text and enhanced data traffic analysis and demand
- GIS routing data implementation and deployment plans

The primary goal of the lifecycle methodology is that the project aligns with overall Customer expectations, and is tailored to fit the needs of Alabama. The Project Plan phases are described below.

### **Solution Definition**

The first phase in the solution lifecycle is the Solution Definition phase, which begins with the kickoff and alignment process and is critical to the overall success of the 9-1-1 initiative. During this process, key members of the joint project team unite to identify roles, responsibilities, critical success factors, project challenges, elaborate on specific strategies and project options, confirm project scope, and finalize plans to expedite solution delivery plans and resources. The proposed solution is reviewed in order to align each primary stakeholder with a common vision and strategy for unified team design and planning.

The AT&T ESInet team conducts current systems, processes, and site studies to more clearly understand the current system and user environment, allowing the team to plan the most effective migration path to the new system.

### **Solution Architecture**

During the Solution Architecture phase, the detailed solution design is finalized based on confirmed requirements. During this phase, the team analyzes the current systems, operations, and operational procedures, identifies the human factors needs, considers implementation options, and with the Customer, commits the detailed solution design and implementation schedule.

Stakeholder participation to identify processes and standard operating impact is critical in this process to support a successful integration of the new system. It is vital that current procedures, connectivity, and routing policies are examined so that the appropriate practices are carried forward to the new system environment. Examples of important areas to consider include load balancing philosophies and default routing rules.

Initial planning for connectivity from the telephone service providers to the Points of Interconnection (POI) also begins in the architecture phase. Key solution architecture planning activities include:

- Detailed solution design and schematics (onsite, site-to-site, site-to-AT&T, firewalls, routers, etc.)
- ESInet and IP specifications
- Telephone service provider connectivity specifications
- Physical requirements (e.g., equipment room design, floor loading)
- Call transfer requirements
- Training plan and schedule
- Refined project plan and timeline

### **Solution Integration**

During the Solution Integration phase, the components of the solution, including processes, applications, servers, network components, and data flow, are engineered and readied for deployment. All network, regional, and customer premises components are delivered, and the equipment rooms and other facilities are readied.

Coordination with wireline, wireless, and VoIP telephone service providers is an essential part of this stage to plan for the 9-1-1 services management transition. Telephone service providers receive all necessary information and detail to obtain connectivity to the AT&T systems and the service provider's connectivity to the POIs is engineered and ordered.

Working closely with stakeholder groups, the project team designs customized provisioning plans (including incoming trunk route plans, bridge lists, and dialing plans). Additionally, the documentation and training developers customize the user and process documents and various training courseware, if needed, to meet the needs of Alabama.

### **Solution Deployment**

During the Solution Deployment phase, all network components and equipment connectivity is validated and acceptance tests are performed, metrics tracking and reporting is initiated, and training is provided. After complete non-live call testing, the system begins supporting live 9-1-1 traffic.

In preparation for deployment and in partnership with Alabama, the AT&T ESInet Project Manager finalizes the cutover plan, including procedures for notification concerning schedule specifics. Prior to the commencement of cutover, the project team members will hold a cutover meeting with Alabama and the telephone service providers. The purpose of this meeting is to discuss the progress of activities and the cutover readiness.

PSAP training is provided in accordance with the detailed training rollout plans. The system will then undergo a system acceptance test and quality walkthrough. Once complete and in agreement Alabama, a live-traffic cutover will then commence. During this Managed Event we work with the legacy 9-1-1 service provider to redirect traffic from the legacy selective router to the AT&T ESInet at the point of interconnection in a flash cut to minimize impact to the PSAPs. Live AT&T ESInet service begins with a heightened sense of monitoring to confirm live production service. At any time during this soak period live traffic can be rolled back by the legacy selective router to the legacy systems. Once live traffic has moved to the system, and the soak period completes, the maintenance period begins and originating service provider end office switches can be re-homed directly to the AT&T ESInet LNGs bypassing the legacy selective router.

Prior to the AT&T ESInet solution implementation the legacy selective router supports the migration and, therefore, can be used to roll back if required. The steps for this roll back are similar to the cutover, but in reverse. In the event of a roll back, 9-1-1 traffic can be selectively routed by ESN over the existing CAMA trunks to the PSAP, an alternative that can be kept in place for as long as the contingency period requires. OSP trunks to the legacy selective router are not re-homed until after a regional deployment supports an OSP's end office or rate center re-home and can still support the legacy selective router service if roll back is required. All connectivity can also remain in place for as long as the State requires and be used for roll back purposes.

### **Solution Maintenance**

The Solution Maintenance phase begins once live traffic is transferred onto any part of the system. During this phase, we provide ongoing tiered support services to monitor service level performance, manage help desk requests, escalate support procedures, and support Alabama to reach the highest level of operational excellence. The solution support team is in place to receive, analyze, and rectify problems and information requests throughout the term of the contract.

### **Testing**

The AT&T ESInet Acceptance Test Plan is customized and utilized to certify that each system component functions as required and all data is provisioned and configured properly. The plan is customized to include Alabama's specific requirements as well as to support pre-cutover validation testing, acceptance testing, and pre-migration provisioning testing for each PSAP. The plan is designed to demonstrate that the individual components, when combined as described in the proposed solution, meet expectations.

The Project Manager will participate in all testing and certification. The technical staff will vary based on the solution module being tested. The Board will be provided with copies of the acceptance test forms specifying what is being tested and the expected results.

We will manage the testing process and coordinate all test calls documented in the test plan. This testing is scheduled in accordance with each PSAP's availability. The PSAP is required to provide a resource to answer the test calls and provide documentation (i.e., screen prints and recordings) for certain calls. Once the System Acceptance Testing is completed the Site is officially accepted and standard warranty and maintenance services start.

We use a structured approach to migrate the customer into the new system. This is reflected on a cutover plan that serves as a checklist or guide to our cutover team to ensure that the system is ready to go live. The focus of the System Migration Strategy is on the activities, tasks, and timing of the days prior to going live on the new system.

All deployment steps are performed with well-defined and coordinated cutover plans and rollback contingency plans. Next Generation 9-1-1 capabilities are validated prior to moving live traffic to Next Generation 9-1-1 facilities. Equipment and network transport is validated prior and during Next Generation 9-1-1 capability deployment. Elements and transport are further validated on a continuous ongoing basis. Proven methods that we have successfully used in previous NG9-1-1 deployments are utilized.

In addition we will work with the State to develop a joint communication to each provider outlining the scope of services to be implemented, a high-level implementation schedule, and key contact information for each entity. AT&T can distribute the communication on behalf of the State.

#### 8.4 SERVICE MANAGEMENT PLAN

Oversight of the ESInet and network functions after implementation is required. The preferred best practice is to utilize Information Technology Infrastructure Library (ITIL) as a guideline for how services are designed, implemented, managed, maintained and improved within a lifecycle.

ITIL integrates five stages of service delivery into a comprehensive methodology for managing the lifecycle of services.

- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement

Within these stages, are specific areas relating to Information Technology Service Management.

At a high level, these areas reference how a service maintains availability, capability, capacity, security, manageability, and operability.

Respondents shall describe their approach to service management for the operation of the system. The service management approach shall incorporate components of ITIL or follow industry best practices for IT service management.

Respondents shall provide a narrative of how their proposed service management approach is integrated into their project management activities. Respondents shall discuss their ability to maintain consistent performance and the service levels of the network

**AT&T Response:**

Comply.

AT&T's Service Management organizations overriding objective is to make the overall customer experience a positive one and one where AT&T exceeds your expectations as the customer. To that end we have structured our Service Delivery model into the following six functional areas so that we can deliver upon that objective.

1. Own the overall customer service experience and service relationship
2. Service Action Planning
3. Partners with Extended Customer Account Team
4. Service Assurance/Maintenance
5. Service Delivery
6. Billing

Below you will find an expanded view into each of the six functional areas in greater detail. Each functional area is as important as the others. Unless all six areas receive the same level of attention, the overall customer experience will not be optimal.

1. Own the overall customer service experience and service relationship
  - Lead Service Executive ensures continuity of care of the account
  - Escalation Support – formal path to resolve customer concerns quickly
  - Sets customer's expectations for issue resolution
  - Conduct strategic Stewardship meeting to build relationship
  - Identify opportunities to increase eTool Adoption
  - Partner with GPM/SDM/OM/Care BSMS/SA (as applicable) to support resolution of service delivery, Service Assurance and billing issues
2. Service Action Planning
  - Develop Service Action plans to resolve customer's service issues rapidly

- Analyze overall customer service trends and metrics for customer to identify gaps and opportunities
  - Develop and maintain Customer Service Guides that contain defined Ordering, Maintenance, Billing and Escalation contacts specific to the customer
3. Partners with the Extended Customer Account Team
- Assists in pre-sales support (RFP suggestions/review)
  - Validate SLA escalation requests
  - Identifies & recommends solutions & services to resolve issues
4. Service Assurance/Maintenance
- Escalation/intervention point of contact for fault reporting/repair (post normal process)
  - Critical site identification
  - RFO/RCA (Reason For Outage/Root Cause Analysis) delivery
  - Network event notification and customer impact correlation and communication
  - MTTR (Mean Time To Repair) Monitoring
  - EIN (Executive Incident Notification) issuance and management
5. Service Delivery
- Coordinates Critical Order Reviews
  - Ensures continuity of the account
  - Escalation Support – formal path to resolve customer concerns quickly
  - Partner with SDMs and BSMS to support resolution of service delivery and billing issues
6. Billing
- Serves as tier 2 complex billing escalation point for resolution (post normal process)

#### **Service Delivery Manager Roles and Responsibilities**

An Emergency Services IP Network (ESInet) designed to meet the requirements for Next Generation 9-1-1 services must be maintained by competent, attentive staff and be fully dedicated position throughout the life of the entire contract. To that end AT&T provides a dedicated Service Manager to support this type of project from the implementation phase to the completion of the contract supporting this offer.

- **General Description** – Main contact to the customer at all times. Providing technical support, overall direction and 24 hour accountability for emergency service requirements or catastrophic facility failures. Conducts on site visits to assess and calculate human resource and capital requirements used in the development of work

schedules and firm bids. Interfaces directly with and escalates to outside vendor tier III and above organizations to resolve customer service issues. The Service Manager Interfaces with customers regarding trouble reports, completion of projects and work order activity.

- **Project/ Program Management** – The assigned Service Delivery Manager is responsible for all aspects of the project starting with the implementation of the project all the way throughout the life of the contract. AT&T believes a project of this magnitude requires a full lifecycle approach to project management.

Responsible for relationship management with AT&T's strategic customers during the project/program management life cycle and may provide consultative advice and support.

- **Technical Support** - Provides in-depth technical and analytical guidance to overall project team. Recommends and takes action to direct the analysis and solutions of problems. Most important of all is that the Service Manager is responsible for overall client satisfaction during the entire contract period.

#### Project Management Roles & Responsibilities

Alabama will benefit from working with a skilled AT&T National Project Manager from the AT&T Public Safety Group. The AT&T Project Manager is directly responsible for the project implementation and can reach out to other AT&T organizations to help smoothly transform Alabama's service from its current environment to an AT&T I3 ESInet. Alabama will benefit from the skills and experience of our National Project Manager and Transformation Team.

The Project Manager will be guided by the principles established by the Project Management Institute (PMI®) in order to plan, schedule, and implement project activities, meeting industry recognized standards of quality, reporting frequency, and control. Nearly 75% of the National Project Management team is comprised of certified Project Management Professionals (PMP) as certified by the Project Management Institute. Experience includes both domestic and international components with project volumes ranging from 100 to 17,000 sites. The average On-time performance (OTP) on a NPM led project is 98%.

The AT&T Project Manager will be responsible for multiple complex projects from conception through implementation. Manage project team members including independent contractors. Develop and implement project plans, design schedules, identify problems and alternate course of action to ensure projects are completed within corporate objectives exceeding customer expectations.

Upon contract award, the AT&T Project Manager will engage team members throughout the AT&T organization to help ensure their commitment and understanding of the project requirements. The PM will schedule a kickoff meeting with the State of Alabama 911 group and other required AT&T organizations. During the kickoff meeting, we will establish roles and

responsibilities and reach a mutual agreement with the State on strategic objectives, plan of approach, priorities and timelines.

Using the information gathered during the meeting, the PM and the State will create an integrated master work plan that will be the implementation roadmap. Throughout the project, AT&T will focus on project planning and execution to help ensure a successful upgrade with minimal (if any) disruption to the State of Alabama's current wireless/VoIP ESInet service.

AT&T's experienced Program Managers, Project Managers, Service Delivery Managers, Installation Technicians, Solutions Engineers and other supporting groups have worked together on many successful installations. We are determined to provide the State of Alabama with an installation that will exceed expectations.

The NG 911 ESInet solution is a state-of-the-art IP based system that employs proven technology to deliver Best of Class 911 services. Given the mission critical nature of the network, greater safeguards are taken during installation but from a practical point of view it is a network installation and AT&T is able to leverage Best Practices of network installations to ensure success.

AT&T Project Managers will use Microsoft Suite of Products to manage all projects as a standard operating procedure. Products will include

- Microsoft Word
- Microsoft Excel
- Microsoft Project
- Microsoft Visio
- Microsoft Outlook

### **Project Management Methodology**

The AT&T Worldwide Project Management Methodology is based upon the industry standard A Guide to the Project Management Body of Knowledge (PMBOK Guide®) Fourth Edition, produced by the Project Management Institute (PMI), as well as AT&T specific processes and procedures. This methodology is similar and aligns with the Department of Administrative Services (DAS) System Development Methodology (SDM) Policy.

The characteristics of a project may be determined by many factors: strategic importance, size, scope, schedule, cost and duration, as well as many others. This methodology is scalable to accommodate all types of projects.

The Project Management Methodology utilizes a four-phase project life cycle:

- Project Start Phase
- Project Plan Phase

- Project Implementation Phase
- Project Completion Phase

These four phases of a project, plus the inputs and activities and deliverables key to the phases, comprise this methodology. Throughout each of the four distinct project phases, the five iterative process groups of Initiating, Planning, Executing, Monitoring and Controlling and Closing will be used. Each of the five processes is applied within each project phase. Many times changes occur within the life cycle of a project and process groups must be repeated.

The four project phases are briefly characterized by:

#### **Project Start Phase**

Recognition that a new project is being considered. During this phase, basic information is gathered, evaluated and based upon the information a decision is made to proceed with the project.

#### **Project Plan Phase**

Establishing the project's approach and planning how to achieve the desired results and baselines for the project in terms of scope, schedule and cost.

#### **Project Implementation Phase**

Implementing the Project Plan to produce the agreed upon deliverables, monitoring the project progress and ensuring that deliverables meet expectations.

#### **Project Completion Phase**

Completing the project. Ensuring that the project was delivered as expected and ensuring that there is final/formal acceptance in order to close out the project.

#### **AT&T Business Field Services - Technicians Roles & Responsibilities**

Technicians within AT&T's ABFS organization are dedicated to installation and maintenance of State of Alabama 911 systems (hardware, software and network). This dedicated team located within Alabama has been in place and maintaining system 24x7x365 since Enhanced 911 was introduced. These technicians all have significant experience and significant ongoing training on specialty 911 systems, Teltronics PBX, Avaya Palladium software, A+ operating system, Microsoft Windows 2000 Pro and Server, ISDN Network Installation and Maintenance, SQL Server database administration, and Cisco routers.

The AT&T ESInet solution uses an Information Technology Infrastructure Library (ITIL) certified help desk for managing trouble tickets. The web-based trouble ticketing system provides Alabama with the capability to generate and access trouble tickets. Intrado utilizes industry standards and best practices in our all our Service Management processes, taking the best of

FEMA as well as ITIL. These processes are utilized both during Incident and Event Management as well as post with Root Cause Analysis and resulting Corrective Action taken. A post Incident report is available upon request by the customer within 10 business days of closure for Severity Level 1 and Level 2 incidents.

We utilize BMC Remedy IT Service Management suite for managing service events. The Change Management module tracks changes in system hardware and software versions. Upgrade events can be tracked via the Change Management module to establish a full version history of the system. This tool allows Service Management to associate a change or problem to the affected components in the database. All scheduled changes are reviewed by a Change Control Board (CCB). Once approved Service Management implements the change through event administration processes; documenting the changes made and the validation.

### **Event Handling and Notification**

The NOC will conduct major and minor planned and critical un-planned events for all NG 9-1-1 services, system maintenance, or upgrades that may impact the State of Alabama network. We will fully manage and complete these events with a trained event management team, facilitating the change implementation, monitoring, and communication through the length of the event. Event team personnel will keep the State informed of event progress. The NOC adheres to stringent, internal event plan processes and procedures to include step-by-step execution procedures with the associated time frames, back-out procedures, and baseline and validation testing. We will include the required back-out time within the scheduled maintenance time-frame.

The AT&T ESInet team will notify the State's single point of contact in writing and will schedule release installations via a mutually agreed upon timeline. Acknowledgement of notification is required from the State. We will send an e-mail notification to the State at the start and end of the pre-arranged maintenance interval.

The AT&T ESInet team and the State will provide all necessary resources to successfully perform and complete the maintenance.

### **Incident Management**

In case of a service interruption and/or outage, the AT&T ESInet team has instituted Incident Management processes and procedures for dealing with various severity levels during the course of an event. Our incident response tools include use of the Incident Command System (ICS). The ICS is modeled directly from the Federal Emergency Management Agency (FEMA) Emergency Management Institute. The ICS processes include resolution, documentation of any incident, communications, and post- event analysis. Intrado manages incidents and provides customers with up to the minute notification and status of ongoing service affecting issues that may impact the Intrado solution.

Incident Management personnel are trained in incident command by the Emergency Management Institute, a FEMA-sponsored Emergency Management Course. This course is a prerequisite to Incident Management training and part of the certification program. Each Incident Commander (IC) is certified prior to leading an Incident without supervision. Trainees must complete the mentoring program and have successfully managed mocked incidents along with supervised incidents. Incident Management is available 24 hours a day, 7 days a week.

### **Network Configuration Management**

Our network configuration tools provide version control and “rollback” functionality to all network elements. This allows the restoration of previously “known good” configurations or timely restoration of stored configurations in the event of equipment failure or disaster recovery.

The network configuration management tools perform the following functions:

- Detect and report on configuration policy violations to provide compliance with corporate standards
- Utilize configuration templates and command templates, custom scripts, and configuration changes to provide consistent implementation of network configurations across similar site types
- Simultaneously modify configurations, change community strings, update ACLs, and block MAC addresses across many devices
- Compare start-up and running configuration files to troubleshoot device configurations issues
- Automatically check all network elements for changes and perform backup for all changed network device configurations on a daily basis

### **Network Monitoring and Management**

The NOC maintains a comprehensive set of tools for monitoring and management of the solution. Multiple network management components monitor network elements, IP paths, packet rates, packet loss, retransmission, and other IP network metrics. These components generate alarms to system operators if the reliable delivery of calls or data is threatened. Delivery of monitoring reports, including bandwidth utilization and connectivity are provided as mutually agreed upon during contract negotiations. Traditional network management tools are complimented by active application monitoring and alerting. The AT&T ESnet application elements will also report network failures as detected by their application messaging activity, some of which is specific to managing the availability and integrity of the solution.

The NOC represents North America’s single largest and most advanced network monitoring facility dedicated solely to monitoring and managing 9-1-1 processes and system elements. The NOC leverages a number of highly sophisticated monitoring tools to ensure the AT&T ESnet systems and networks are maintained to the highest quality and availability. These tools include

HP Openview (HPOV) for monitoring all network elements, data communications, and remote facility environments.

In addition, the NOC provides continuous system support and monitoring 24x7 to each ALI node supplied by the AT&T ESInet and to the database management system. The NOC also monitors all PSAP connections into the ALI nodes at the application level. Staffing in the NOC is second to none in the industry with Tier 0 through Tier 2 support staff on duty 24x7x365.

**Conclusion:**

This overall approach provides our customer base with an assurance not only that we understand the business model we are trying to put in place but we understand all the various touch points that must be factored into the equation if a Service Delivery model is to be truly effective. At the end of the day this type of process ensures customer deliverables are met and ultimately customer satisfaction is achieved.

***- Nothing Follows -***

**AL NG911 System and Services RFP  
AL-NG911-RFP-16-001  
Addendum 1  
Question and Answer Responses  
2-19-2016**

Question No.	DOC NAME (RFP or Attachment)	PAGE # OR SECTION #	RESPONDENTS QUESTION	RESPONSE
1	1-AL-NG911-RFP-16-001-SECTION1-GENERAL-INSTRUCTIONS-FINAL(2)	4	.....hereby requests that the deadline for submitting the proposal be extended by 3 weeks, to March 25 <sup>th</sup> , 2016.	The due date for responses to this RFP will remain 3-4-2016. No extension will be granted at this time.
2	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		Please detail the maximum concurrent call volume (wireless, wireline, voip) for each PSAP	The Board does not maintain this information.  Please refer to Appendix A of this document.
3	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		How many DS0's are terminated at each Wireless Aggregation Point?	Please refer to Appendix A of this document.
4	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		How many DS0's are terminated at each existing legacy Selective Router?	Please refer to Appendix A of this document.
5	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		Please list all States, ESInets and out of state legacy Selective Routers that the State of Alabama requires call transfer to and from	Please refer to Attachment D – Technical Specifications, Sections 1-8.  Specific LSRs and points of demarcation for interstate interconnection would be at the discretion of the contracted service provider or as directed by the Board.

				Any legal or regulatory agreements that may be required to facilitate or support the ability to transfer ANGEN traffic in state or to contiguous states will be the responsibility of the contracted service provider.
6	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		Please inventory and detail the current equipment used at the wireless aggregation points? Please include make, model, software load and current maintenance provider and warranty (if any) information along with termination dates for maintenance and warranty	Please refer to Appendix A of this document.  The Board does not maintain this information.
7	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications	6.1	What are the current SLA's being used in the ANGEN network operation?	There are no current SLAs to provide on behalf of the Board.
8	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		Please provide the physical address of the two data centers	Please refer to Appendix A of this document.
9	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		What additional data applications do you intend to use on the ESInet? And, what bandwidth do you expect each of these data applications to require?	Please refer to AL-NG911-RFP-16-001 Attachment D Sections 1 through 8.
10	AL-NG9-1-1-RFP-16-001		How do you intend for CJIS (NCIC/NLETS) traffic	It is the expectation of the Board that any ESInet

	ATTACHMENT D- Technical Specifications		to utilize the ESInet? Who is the current provider in AL of NCIC access? And how is it currently configured and delivered at each PSAP?	<p>services provided under contract would also be capable of transporting CJIS data to and from the connected PSAPS.</p> <p>In order to meet this expected level of service, any proposed ESInet solution must apply CJIS policy to all traffic, and you must provide a description of each element outlined in the bullet points in Section 2.6 ANGEN Network Security.</p> <p>The CJIS policy covers all aspects of the network operation and is not traffic dependent.</p> <p>They may be found at <a href="http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/view">http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/view</a>.</p>
11	Attachment C – Cost Proposal		Is there a mechanism to propose “optional” value-added elements that may be of interest that will not impact the base price for the required solution?	<p>If you wish to add optional or value added services to your proposal please do so under the appropriate section of the RFP and where relevant to the requirements sought by the Board.</p> <p>Please refer to AL-NG911-RFP-16-001 Attachment D – Technical Specifications Section 1 for additional instructions.</p>
12	Attachment C – Cost Proposal		Instructions state rows may be added to include any Other Required	If the worksheet as downloaded is not working

			Items. As the sheets are password protected, is there an alternate method to include additional items?	properly, please contact <a href="mailto:Leah@al911board.com">Leah@al911board.com</a>
13	AL-NG911-RFP-16-001-Attachment-A-Sample Contract-FINAL (002).docx	P.7 Sec. 22	Section 22 says that any lawsuit must be brought in the Circuit Court of Montgomery Alabama. Would the State be willing to amend the paragraph to also permit suit, in an appropriate circumstance, in a Federal Court with jurisdiction and venue over the suit?	No.
14	AL-NG911-RFP-16-001-Attachment-A-Sample Contract-FINAL (002).docx	P.7 Sec. 23	Would the state be willing to negotiate this Indemnification clause to identify with more specificity the kinds of injury that would be subject to the clause as well as to address applicable standards of conduct?	Yes.
15	AL-NG911-RFP-16-001-Attachment-A-Sample Contract-FINAL (002).docx	P.10 Sec. 34	In reference to Paragraph 34 of the Sample Contract, does the State adhere to the Prompt Payment Act (Alabama Code Section 41-16-3)?	Yes, please refer to Addendum 3.
16	AL-NG9-1-1-RFP-16-001 ATTACHMENT D- Technical Specifications		Please provide the number of positions at each PSAP	The Board does not maintain this information.

Question No.	DOC NAME (RFP or Attachment)	PAGE # OR SECTION #	RESPONDENTS QUESTION	RESPONSE
1	General Instructions	Page 4, Section 1.3;  Page 9, Section 1.16	The proposal due date is one week after questions are answered. Since answers to questions may influence design and pricing, would the Board be willing to extend the proposal deadline two weeks to March 18, 2016?	The due date for responses to this RFP will remain 3-4-2016. No extension will be granted at this time.
2	Attachment A, Sample Contract	Page 8, Section 25.A.6	We note that Section 25.A.6 of the sample contract refers to surety and fidelity bonding. Please confirm the exact type, amount and form of bonding that would be required for this project.	The Board may, at its option, require a performance bond for contracted system services provided by a contracted service provider.  The determination for a performance bond and any specifics as to amount etc. would be negotiated by the parties during contract negotiations that may or may not result from AL-NG911-RFP-16-001
3	Attachment C, Cost Proposal	Schedule 2-6 Tab	How should we capture optional components in Schedules 2-6?	If you reflect optional service costs in the total costs shown on Schedules 2-6 then be prepared to explain the additional costs, optional or not.

				If you are going to propose optional services not detailed in Schedule 1 costs, then provide details of the optional services and costs in your cost assumptions narrative portion of the cost proposal you submit.
4	Attachment D, Technical Specifications	Page 8, Section 1.4	Please describe the capabilities of the current ANGEN network with regard to QoS, latency, jitter, and packet loss.	Please refer to Appendix A of this document.
5	Attachment D, Technical Specifications	Page 9, Section 1.4	Please describe the current technical support methodology of ANGEN. For instance, what monitoring and troubleshooting tools are available for operation of a 9-1-1 network?	Please refer to Appendix A of this document.
6	Attachment D, Technical Specifications	Page 9, Section 1.4	What is the signaling protocol between the ASA and selective routers?	Please refer to Appendix A of this document.
7	Attachment A, Sample Contract	Page 12, Non-Collusion and Acceptance	Please confirm that the Non-Collusion and Acceptance language included at the end of the Sample Contract is not intended to preclude payment of standard sales commissions to internal employees, as applicable. As presently worded there does not appear to be such a typical carve-out, so for clarity we would	The Non-collusion and Acceptance Language is not intended to preclude payment of standard sales commissions to internal employees of a vendor.

			request that this be clarified in the language.	
8	Attachment D, Technical Specifications	Page 4, Section 1	Please provide a diagram of the as-built network serving the PSAPs.	The Board does not maintain this information.
9	Attachment D, Technical Specifications	Page 4, Section 1	Does Alabama want ANI/ALI fees currently being paid to the provider included in this bid?	It is the expectation of the Board that all costs or fees associated with providing services related to the requirements of this RFP would be included in the monthly recurring service fee submitted in Attachment C – Cost Proposal.
10	Attachment D, Technical Specifications	Page 16, Section 2	If Alabama has any PSAP call takers being served by IP, what is the breakout of IP-enabled PSAPs vs CAMA served PSAPs?	Please refer to Appendix A of this document.
11	Attachment D, Technical Specifications	Page 16, Section 2	What types of CPE and call taker hardware/software (vendors, product) does Alabama have currently running across its PSAPs?	Please refer to Appendix A of this document.
12	Attachment D, Technical Specifications	Page 16, Section 2	How many PSAPs are currently served by a host/remote type of CPE/call taker implementation?	Please refer to Appendix A of this document.

13	Attachment D, Technical Specifications	Page 16, Section 2	<p>Does the ANGEN network reach the PSAPs?</p> <p>If yes, how many of the PSAPs are served by this network?</p> <p>What is the bandwidth/speed at each PSAP served by this network?</p>	<p>No, the current ANGEN network does not interface at the PSAP.</p>
14	Attachment D, Technical Specifications	Page 16, Section 2	<p>Please provide PSAP addresses for quoting network services to each location.</p>	<p>Please refer to Appendix A of this document.</p> <p>Specific PSAP addresses will not be shared at this point in the procurement process.</p> <p>Estimated pricing for these services are expected and may or may not change as specifically contracted services are determined and awarded by contract negotiation.</p>
15	Attachment D, Technical Specifications	Page 16, Section 2	<p>Please provide desired trunking capacity (ingress) for the state per LSR.</p>	<p>Please refer to Appendix A of this document.</p>
16	Attachment D, Technical Specifications	Page 16, Section 2	<p>Please provide PSAP trunking (egress) needs per PSAP.</p>	<p>Please refer to Appendix A of this document.</p>
17	Attachment D, Technical Specifications	Page 16, Section 2	<p>Should the PSAP accept IP or is LPG needed per location based on CPE requirements?</p>	<p>Please refer to Appendix A of this document.</p>

<p>18</p>	<p>Attachment D, Technical Specifications</p>	<p>Page 16, Section 2</p>	<p>How much available rack space does ASA Huntsville and ASA Montgomery have to collocate equipment by another telco?</p>	<p>Please refer to Appendix A of this document.</p> <p>Specific locations and agreements for collocation of a contracted service provider's equipment would be the responsibility of the contracted service provider.</p> <p>The Board is requiring the use of existing circuit terminations, not necessarily the facilities those terminations reside in.</p> <p>If a respondent wishes to extend the terminations and not collocate the entire system in the current facilities, then provide sufficient explanation in your proposed solution as to how or why this better achieves a cost savings or satisfies requirements.</p> <p>If a respondent wishes to maintain presence at the current Huntsville and Montgomery data centers, then the Board will work with the contracted service provider to negotiate any new or amended agreements for space, services, access etc.</p>
<p>19</p>	<p>Attachment D, Technical Specifications</p>	<p>Page 18, Section 2.3</p>	<p>Which PSAPs have diverse entries?</p>	<p>The Board does not maintain this information.</p> <p>The design requirement for PSAP connectivity is as much</p>

				<p>diversity and redundancy as is practicable.</p> <p>Alternative solutions for those locations that lack route diversity or building entry diversity are expected in any proposal providing ESInet services to PSAPs.</p> <p>Examples might include commercial LTE systems, or commodity cable connections.</p>
20	Attachment D, Technical Specifications	Page 23, Section 2.4.8.1	Alabama has requested that the minimum access portion of the network from the ESInet to the PSAP be 10 Megabits. Would Alabama prefer to use an initial lower bandwidth then eventually grow to 10 Mb in order to reduce cost?	The Board would encourage any and all options or approaches that either reduce costs, produce economies of scale at state and local levels, or leverages existing investments, connections, agreements etc.
21	Attachment D, Technical Specifications	Page 30, Section 3.2	Please describe the type of desired capability when interconnecting with service providers in states other than Alabama.	Please refer to AL-NG911-RFP-16-001 Attachment D Sections 1 through 8
22	Attachment D, Technical Specifications	Page 41, Section 5	If, based on the bid responses, Alabama determines that it is in the best interest of the State to make multiple awards, will Alabama do so? For example, would Alabama consider a separate award	The Board reserves the right to make multiple awards.

			for the statewide data reporting solution only?	
23	Attachment A, Sample Contract	Page 8, Section 25.A.6	Was any bonding required from or provided by the existing/prior provider of network services for the operation of the ANGEN Network serving the PSAPs of Alabama? If so, what type and amount?	No.
24	Attachment B, Business Proposal; General Instructions	Business Proposal Tab, Section 2.3.3; Page 12, Section 2.3.3	Attachment B requires 2 years of financial statements while General Instructions requires 5 years of financial statements. Does the Board require 2 years of financial statements for the General Instructions?	5 years of financial statements is the requirement for financials.

Question No.	DOC NAME (RFP or Attachment)	PAGE # OR SECTION #	RESPONDENTS QUESTION	RESPONSE
1	Attachment D	Section 4.9	Does ANGEN intend to keep their current ALI provider/solution and wish to add a LIS or do they intend to replace the ALI provider/solution with an LDB comprised of an ALI/LIS function?	Please refer to AL-NG911-RFP-16-001 Attachment D Section 4 for specific requirements related to ALI, LIS and other LDB services.
2	Attachment D	Section 3.3	Does the state desire to have its own TCC (provided by the respondent) with	The expectation would be for all AL PSAPs to use or eventually use the TCC

			connectivity for wireless carriers/other TCCs or would they allow PSAPs to connect to the existing TCC providers?	services provided under contract.
3	Attachment D	Section 2.6.3 Network Security Standards	How does State of Alabama anticipate bidder applying FBI CJIS security policy? Should the policy be applied as outlined in the CJIS policy itself,, specifically its section 1.1 "Purpose"?	Yes, the policy should be applied as outlined in the policy itself for all network components and services.
4	Attachment D	Section 4.9	How may Landline TNs are there currently?	The Board does not maintain this information.
5	Attachment D	Section 4.9	Is there only one ALI Database today? (if not how is is broken out?)	There are multiple service providers in AL. The Board does not maintain this information.
6	Attachment D	Section 4.9	Is there a central MSAG for the State of Alabama? if not how is it broken out currently?	The Board does not maintain this information. There is no central MSAG for AL. MSAGs are maintained at the local/ECD level and in coordination with each PSAPs 911 Service Provider
7	Attachment D	Section 4.9	How many Landline Telephone Companies do business in AL?	The Board does not maintain this information. Here is a link to more information regarding AL

				<p>service providers.  <a href="http://www.psc.state.al.us/telecom/TelcodbsrvForm3.asp">http://www.psc.state.al.us/telecom/TelcodbsrvForm3.asp</a></p>
8	Attachment D	Section 4.9	How many ALI Discrepancies and No Record Finds were there in 2015?	The Board does not maintain this information.
9	Attachment D	Section 4.9	Are there any Private Switch ALI (PS/ALI) Customers? If so, How many?	The Board does not maintain this information.
10	Attachment D	Section 2.3.1	Will the existing LEC owning the existing Selective Routers continue to aggregate 911 traffic from existing CLEC and ILEC End office 911 trunks?	<p>The Board would encourage this as an example of reusing existing infrastructure and agreements to reduce costs.</p> <p>However, all proposals are required to explain how the proposed system will interconnect and transport all forms of 911 traffic regardless of originating service provider.</p> <p>This would apply to all scenarios, including legacy connections regardless of the involvement of traditional providers.</p> <p>Please refer to AL-NG911-RFP-16-001 Attachment D Section 4 for specific requirements for legacy connections.</p>

11	Attachment D	Section 2.3.1	Will the State of Alabama mandate for all LEC, CLEC and ILEC to rehome their 911 trunks to the new POI at each Data center?	The Board will work in concert with the contracted service provider(s) as necessary to facilitate the interconnection and transport of ANGEN traffic on both the ingress and egress portions of the system.
12	Attachment D	Section 2.1	We understand there are 88 ECD's in the state. Does each ECD maintain its own individual 9-1-1 GIS dataset? If not, how many authoritative entities are there in the state for 9-1-1 GIS data?	<p>The Board does not maintain this information.</p> <p>Generally speaking yes, GIS data is maintained at the local PSAP level.</p> <p>Specific information on numbers of entities is not known at this time.</p>
13	Attachment D	Section 4.3	This section states that the ECRF must support location error correction. Please clarify what is meant be location error correction.	<p>The ECRF must include a capability to update address records on an ad hoc basis, such as addresses that may be inaccurate - by those with authorization to ensure call routing data is accurate.</p> <p>A description of how the ECRF can be updated should be included with the proposal.</p>
14	Attachment D	4.3	As the GIS data to be used in the ECRF is handled locally throughout the state, what research has been done on the	The Board does not maintain this information.

			quality of the local data for NG9-1-1 purposes? Have any surveys or analyses been performed on local GIS data across the state?	
15	ATTACHMENT D- Technical Specifications	3.3.2 PSAP GRAPHICAL USER INTERFACE AND TEXT STATUS WINDOWS (BROWSER METHOD)	PSAPs utilizing direct SIP MSRP interface into their controller have visibility internal to the controller; can you please expand upon how you envision this information being part of a statewide Web-enabled access point?	Based upon the information presented in the question, if the connection at a PSAP were SIP/MSRP, then the need for a web enabled access point would not be required. They are mutually exclusive deployment methods for text.
16	ATTACHMENT D- Technical Specifications	4.5 LEGACY NETWORK GATEWAY (LNG)	The ANGEN Network diagrams suggest T1 interface into LNG. However the requirements reads for SS7 or MF signaling. Should SS7 be included in the design?	Please refer to Appendix A of this document.

Question No.	DOC NAME (RFP or Attachment)	PAGE # OR SECTION #	RESPONDENTS QUESTION	RESPONSE
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1	Attachment D, Technical Specifications	3.3. and Section 5	The RFP outlines the requirement for providing a hosted solution for the processing of text-to-911 messages. Is it the expectation or requirement of the Board to receive text-to-911 reporting? If so, what section should we provide response for SMS reports?	It is the expectation of the Board that all forms of traffic, including text, would have the ability to be reported on and included as part of the enterprise wide reporting system. Any reporting capabilities proposed should be responded to in AL-NG911-RFP-16-001 Attachment D Section 5.
2	Attachment C, Cost Proposal	Section 5	What line item in the Cost Proposal would you like the costs for text-to-911 reporting to be included?	The expectation would be that any costs associated with services provided in response to the reporting requirements in Section 5 are reflected in the corresponding section for Reporting Services found in Attachment C – Cost Proposal.
3	Attachment D, Technical Specifications	Section 1, 1.1	When providing a best in class solution to a specific section of the RFP, what is the expectation for partially complying with other sections and/or requirements? EXCEPTION or NON-COMPLY?	Please refer to AL-NG911-RFP-16-001 Attachment D Section 1 for specific instructions on how to identify responses.
4	Attachment D, Technical Specifications	Section 1, 1.4	The wireless E911 call volumes were provided per PSAP, can you please send the annual 911 and admin call volumes per PSAP? If not, can you please	The Board does not maintain this information.

			provide the total position/station count per PSAP?	Please refer to Appendix A of this document.
5	Attachment D, Technical Specifications	Section 1	Out of the 118 Primary PSAPS, how many PSAPs are in a host/remote environment? How many hosts, remotes and standalone PSAPs?	This information is provided voluntarily by PSAPs and ECDs to the Board.  Please refer to Appendix A of this document.
6	Attachment B – Business Proposal		Attachment B, Business Proposal, doesn't allow for detailed responses. The response sections are unable to expand. Can you please send an expandable version of the Business Proposal?	If the worksheet as downloaded is not working properly, please contact <a href="mailto:Leah@al911board.com">Leah@al911board.com</a>
7	Attachment D, Technical Specifications	Section 1.3	Is 100% coverage with NG-SEC expected or do small/medium sized businesses have the ability to express exception to some NG-SEC requirements?	All respondents must articulate any exceptions to the requirements or offer a sufficient alternative in their response.
8	Attachment D, Technical Specifications	Section 5	Is it expected that MIS systems will provide reporting on both the network and at the local PSAP level?	Yes.
9	Attachment D, Technical Specifications	Section 7.1	Do non-mission critical systems require separate UPS systems or can they utilize the premise UPS if they are low wattage (ex: 65W or less)?	Where possible, the Board would prefer the use or re-use of existing systems and services to reduce costs to the Board and the PSAPs.  There will likely be situations where any contracted service provider supporting ANGEN will have to

				ensure their own power, UPS, backup, redundancy etc. in order to meet their respective SLAs to the Board.
10	Attachment D, Technical Specifications	Section 1	How many of the PSAP's have a redundant and/or geo-diverse CPE Solution?	The Board does not maintain this information.  Please refer to Appendix A of this document.
11	Attachment D, Technical Specifications	Section 2.6.1	Is network monitoring for intrusion detection/prevention/malware/hacking as a SaaS a viable option for response to section 2.6.1?	Yes.
12	Attachment D, Technical Specifications	Section 2	Is it an expectation of the MIS platform to measure and report on QoS or is this an expectation of the ESInet subsystem implementers?	QoS or any other operational network measures would be the responsibility of the ESInet service provider.
13	Attachment D, Technical Specifications	Section 6.6	What are the expected manned hours for the NOC?	If you are proposing services that require a Network Operations Center, then the expectation would be 24x7x365.
14	Attachment D, Technical Specifications	Section 8.3	For section 8.3 are all the PMO artifacts required to be complete as part of the response or is comply acceptable with a narrative and artifacts can be generated after award?	The Board would like to see more than a comply. Example documents or examples used for other projects would be preferred.

15	Attachment D, Technical Specifications	Section 8.1	Are all the PMO artifacts required to be complete as part of the response or is comply acceptable with a narrative and artifacts can be generated after award?	The Board would like to see more than a comply. Example documents or examples used for other projects would be preferred.
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Question No.	DOC NAME (RFP or Attachment)	PAGE # OR SECTION #	RESPONDENTS QUESTION	RESPONSE
1	1-AL-NG911-RFP-16-001-SECTION 1-GENERAL-INSTRUCTIONS-FINAL (2).doc	1.3 Due Date for Proposals	As the State's schedule currently reflects having responses to bidder questions by February 26, 2016 and a final proposal submission date of March 4, 2016, this does not leave bidders much time to account for what likely will be very substantive changes and/or modifications to their proposals. To allow bidders ample time to account for such changes which are likely based on previous statewide RFPs of this magnitude, and to afford the State the most competitive and accurate proposals	The due date for responses to this RFP will remain 3-4-2016. No extension will be granted at this time.

			<p>possible, would the State consider amending the schedule to allow for questions up to February 26, 2016, responses to questions by March 4, 2016, and final submission of proposals to April 1, 2016?</p>	
<p>2</p>	<p>5-AL-NG911-RFP-16-001-ATTACHMENT-D-TECHNICAL SPECIFICATIONS-FINAL.doc</p>	<p>6.1 Customer Support Services</p>	<p>“Respondents must agree to meet the current Service Level Agreements (SLA) being used in the ANGEN network operation and negotiate “in good faith” new SLA’s that meet the expectations of the functionality described in this RFP and the Board.” – Can the State provide copies of the current SLA’s to allow us to review and subsequently agree to meet them? Without details it will be impossible for any potential bidder to agree to meet the current SLA’s.</p>	<p>It is the expectation of the Board that new SLAs will be developed as part of any contract negotiations for proposed services submitted in response to this RFP.</p> <p>Any current SLAs focus on equipment and services related to legacy connections.</p> <p>Any new SLAs would be based upon the services that the Board ultimately contracts with a service provider to provide in support of the ANGEN system.</p>

3	5-AL-NG911-RFP-16-001-ATTACHMENT-D-TECHNICAL SPECIFICATIONS-FINAL.doc	1.4 ANGEN BACKGROUND	Call volumes for the ANGEN network are provided. However the RFP is requesting the network to handle all 9-1-1 calls, not just those from the wireless carriers. Can the state provide the call volumes of the other sources of 9-1-1 calls that will also be carried on the new network?	Please refer to Appendix A of this document.
4	5-AL-NG911-RFP-16-001-ATTACHMENT-D-TECHNICAL SPECIFICATIONS-FINAL.doc	Figure 1 - ANGEN Conceptual Design Diagram	Figure 5 contains a component labeled as NG ALI. In the NENA documents referenced, there is no NG ALI Functional Element or component described. Can the state provide details on the functions of the NG ALI component?	Please refer to AL-NG911-RFP-16-001 Attachment D Section 4 for specific requirements related to Legacy Database functions.
5	5-AL-NG911-RFP-16-001-ATTACHMENT-D-TECHNICAL SPECIFICATIONS-FINAL.doc	Figure 2 - ANGEN ESInet Goals and Design Considerations	In Figure 6, the fourth bullet point states, "Current thought is to require the use of ASA circuits for new network due to cost". Does this mean the state will provide all circuits for the network and manage the network? Can	<p>No, the Board is not providing circuits for the network.</p> <p>A network design is expected with or without ASA components and pricing.</p> <p>Specific redundancy, diversity, last mile environments for most of the 118 PSAPs included in</p>

		details in regard to the circuits be provided to enable a complete network design? Does ASA have circuits out to each PSAP, including diverse routes to each PSAP?	this RFP are unknown at this time.
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## Appendix A – Additional PSAP and ANGEN Information

### Answers to questions pertaining to AL call volumes

- 2,735,027 - Wireless 9-1-1 Calls processed by ANGEN and routed to PSAPs via LEC selective routers
- 465,000 - Estimated number of phantom events/calls that last less than 1 second and have not been reconciled or eliminated by the current system service provider (these are not actual 9-1-1 calls)
- 3,200,027 - wireless call events processed by ANGEN in 2015
- 684,000 - Wired calls assuming wireless = 75% - exact number is unknown.
- 3,884,027 - Estimated total 9-1-1 call volume for 2015

### Additional Information pertaining to AL PSAPs

- 118 - Primary PSAPs in Alabama and in scope for this RFP
- 109 - PSAPs receive direct wireless calls processed via ANGEN - Not all primary PSAPs answer wireless 911 calls today
- 88 ECDs are responsible for and operate/fund the 118 PSAPs
- The Board is responsible to the 88 ECDs

Each of these numbers could serve as a unit cost used to determine service costs in a respondents solutions. It also is provided to help respondents understand the different user types and potential interface points required for a successful solution.

### **Information on PSAP by County by CPE, Model and Trunks** *(This information is self-reported and may not be current.)*

PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Autauga 9-1-1	AUTAUGA	Cassidian	Sentinel Patriot	Patriot	6
Baldwin County 9-1-1	BALDWIN	Cassidian	Sentinel CM	Sentinel CM	8
Barbour County SO	BARBOUR	Microdata	xT911	xT911	7
Bibb County 9-1-1	BIBB	Zetron	Interceptor	Interceptor	5
Blount County 9-1-1	BLOUNT	Solacom	Guardian	Guardian	10
Union Springs PD	BULLOCK	Zetron	Zetron 3200	Zetron 3200	3
Butler County 9-1-1	BUTLER	HOSTED CALLWORKS (Wiregrass)			4
Calhoun County 9-1-1	CALHOUN	Cassidian	Sentinel Patriot	Patriot	10
Chambers County 9-1-1	CHAMBERS	Solacom	Guardian		

PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Cherokee County 9-1-1	CHEROKEE	Cassidian	TCI Synapse	Synapse	4
Chilton County 9-1-1	CHILTON	HOSTED CALLWORKS (Wiregrass)	Lifeline	Lifeline	
Choctaw County 9-1-1	CHOCTAW	Cassidian	Sentinel Patriot	Patriot	5
Clarke County 9-1-1	CLARKE	Cassidian	Rescue Star	Buying New?	8
Clay County 9-1-1	CLAY	Cassidian	Vesta Pallas	Vesta Pallas	3
Cleburne County 9-1-1	CLEBURNE	Cassidian	Sentinel Patriot	Patriot	3 wired; 2 wireless
Elba PD	COFFEE	HOSTED CALLWORKS (Wiregrass)			
Enterprise PD	COFFEE	HOSTED CALLWORKS (Wiregrass)			
Colbert County 9-1-1	COLBERT	Cassidian	Vesta Sentinel	Vesta 4.0	6
Conecuh County 9-1-1	CONECUH	Zetron	Zetron 3200	Zetron 3200	4
Coosa County SO	COOSA	Cassidian	Sentinel Patriot	Patriot	6
Goodwater PD	COOSA	Same as Coosa county			
Covington County 9-1-1	COVINGTON	HOSTED CALLWORKS (Wiregrass)			
Crenshaw County 9-1-1	CRENSHAW	HOSTED CALLWORKS (Wiregrass)			
Cullman County SO	CULLMAN	Positron	Viper	Viper	2
Cullman PD	CULLMAN				2
Hanceville PD	CULLMAN				2
Daleville DPS	DALE	HOSTED CALLWORKS (Wiregrass)			Unknown
Fort Rucker PD	DALE	?	?	?	Unknown
Ozark-Dale County 9-1-1	DALE	HOSTED CALLWORKS (Wiregrass)			Unknown

PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Dallas County 9-1-1	DALLAS	Zetron	Zetron 3200	Zetron 3200	3
DeKalb County 9-1-1	DE KALB	Positron	Lifeline	Lifeline	5
Ft Payne PD	DE KALB	Tritech	Avaya Call master - G450	Tritech G450	2
Elmore County SO	ELMORE	Solacom	Guardian	Guardian	6
Eclectic PD	ELMORE				2
Millbrook PD	ELMORE				4
Tallassee PD	ELMORE				4
Wetumpka PD	ELMORE				4
Atmore PD	ESCAMBIA	CASSIDIAN VESTA	Vesta	Vesta	8
Brewton PD	ESCAMBIA				
East Brewton PD	ESCAMBIA				
Escambia County SO	ESCAMBIA				
Flomaton PD	ESCAMBIA				
Poarch Creek Indians	ESCAMBIA				
Etowah County 9-1-1	ETOWAH	Solacom	Guardian	Guardian	5
Gadsden PD	ETOWAH	Solacom	Guardian	Guardian	Unknown
Fayette County 9-1-1	FAYETTE	Cassidian	Vesta Pallas	Vesta Pallas	5
Franklin County SO	FRANKLIN	Cassidian	Vesta Sentinel	Vesta 4.0	2 - Wired Hville 2 - Wired Winfield 2 - Wireless - Hville
Geneva County 9-1-1	GENEVA	HOSTED CALLWORKS (Wiregrass)			Unknown
Greene County 9-1-1	GREENE	Zetron	Zetron 3200	Zetron 3200	4
Hale County 9-1-1	HALE	ATT Microdata	Microdata	Microdata	Unknown

PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Abbeville PD	HENRY	HOSTED CALLWORKS (Wiregrass)			Unknown
Headland PD	HENRY	HOSTED CALLWORKS (Wiregrass)			Unknown
Dothan PD	HOUSTON	HOSTED CALLWORKS (Wiregrass)			Unknown
Houston County SO	HOUSTON	HOSTED CALLWORKS (Wiregrass)			Unknown
Scottsboro PD (jackson co 911)	JACKSON	Cassidian	Sentinel Patriot	Patriot	3
Adamsville PD	JEFFERSON	?	?	?	Unknown
Bessemer City PD	JEFFERSON	Cassidian	Sentinel Patriot	Patriot	6
Birmingham PD	JEFFERSON	CallWorks			18
Fairfield PD & FD	JEFFERSON	?	?	?	Unknown
Gardendale PD	JEFFERSON	Zetron	Inegrator RD	Integrator	4
Graysville PD & FD	JEFFERSON	?	?	?	2
Homewood PD & FD	JEFFERSON	Positron	Viper	Viper	5
Hoover PD	JEFFERSON	Cassidian	Sentinel Patriot	Patriot	8 (w/4 dedicated wireless)
Hueytown PD	JEFFERSON	Cassidian	Sentinel Patriot	Patriot	3
Irondale PD	JEFFERSON	Cassidian	Sentinel Patriot	Patriot	3
Jefferson County 9-1-1	JEFFERSON	CallWorks			Unknown
Leeds PD	JEFFERSON	Zetron	Integrator	Integrator	3
Midfield PD	JEFFERSON	Zetron	Zetron 3300	Zetron 3300	3
Mountain Brook PD & FD	JEFFERSON	Cassidian	Sentinel Patriot	Patriot	5

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PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Pleasant Grove PD	JEFFERSON	Zetron	Zetron 3200	Zetron 3200	3
Tarrant City PD & FD	JEFFERSON	Cassidian	TCI NDT	NDT	3
Vestavia (Consolidated with Shelby Co)	JEFFERSON	CallWorks	CallWorks		(Consolidated with Shelby Co)
Lamar County 9-1-1	LAMAR	Zetron	Zetron 3200	Zetron 3200	3
Lauderdale County 9-1-1	LAUDERDALE	Positron	Lifeline	Lifeline	4
Lawrence County 9-1-1	LAWRENCE	Positron	Power 911	Power 911	3
Auburn Public Safety Dept	LEE	Cassidian	Vesta Pallas	Vesta Pallas	4
Lee County SO	LEE		Positron		5
Opelika PD	LEE		Positron		5
Limestone County 9-1-1	LIMESTONE	Solacom	Guardian	Guardian	4 wired; 4 wireless
Lowndes County 9-1-1	LOWNDES	Zetron	Zetron 3200	Zetron 3200	2
Macon County SO	MACON	Cassidian	Sentinel Patriot	Patriot	2
Notasulga PD	MACON				2
Shorter PD	MACON				2
Tuskegee City PD	MACON				2
Huntsville-Madison County 9-1-1	MADISON	Solacom	Guardian	Guardian	22
Marengo County 9-1-1	MARENGO	SYNERGEM	Evolution 911	Evolution 911	4
Marion County 9-1-1	MARION	Cassidian	Vesta Sentinel	Vesta 4.0	2 wired; 3 wireless
Marshall County 9-1-1	MARSHALL	Cassidian	Sentinel Patriot	Patriot	8
Albertville PD	MARSHALL				7
Arab Police (Secondary)	MARSHALL				Unknown
Boaz PD Secondary	MARSHALL				Unknown

PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Guntersville PD Secondary	MARSHALL				Unknown
Marshal County S/O Secondary	MARSHALL				Unknown
Mobile County 9-1-1	MOBILE	Cassidian	Sentinel CM	Sentinel CM	24
Monroe County 9-1-1	MONROE	Cassidian	TCI - NDT	NDT	6
Monroeville PD	MONROE	?	?	?	Unknown
Montgomery County SO	MONTGOMERY	CallWorks	Power 911	Power 911	3
Montgomery PD	MONTGOMERY	CallWorks	Viper	Viper	10
Morgan County 9-1-1	MORGAN	Cassidian	Sentinel Patriot	Patriot	4 wired; 4 wireless
Perry County 9-1-1	PERRY	Cassidian	Vesta Pallas	Vesta Pallas	4
Pickens County 9-1-1	PICKENS	Cassidian	Sentinel Patriot	Patriot	AT&T = 4 - 2 Wired & 2 Wireless CenturyLink = 6 Wired Big River = 2 Wired
Troy PD	PIKE	Solacom	Guardian	Guardian	6
Randolph County 9-1-1	RANDOLPH	Cassidian	Vesta Pallas	Vesta Pallas	4
Phenix City PD	RUSSELL	Zetron	Zetron 3200	Zetron 3200	4
Russell County SO	RUSSELL	Zetron	Zetron Max	Zetron Max	3
Pelham PD	SHELBY	CallWorks	CallWorks	CallWorks	4
Shelby County 9-1-1	SHELBY	CallWorks	CallWorks	CallWorks	12
St Clair County 9-1-1	ST. CLAIR	Cassidian	Sentinel Patriot	Patriot	6
Sumter County SO	SUMTER	Positron	Power 911	Power 911	5
Talladega County 9-1-1	TALLADEGA	Cassidian	Sentinel Patriot	Patriot	5 wired; 5 wireless
Alexander City PD	TALLAPOOSA				5

PSAP Name	COUNTY	911 CPE	CPE Model	Standard Names	# of trunks
Tallapoosa County SO	TALLAPOOSA	Zetron	Zetron 3200	Zetron 3200	5
Northport PD	TUSCALOOSA	?	?	?	4
Tuscaloosa County SO	TUSCALOOSA	CallWorks	Zetron 3200	Zetron 3200	4
Tuscaloosa PD	TUSCALOOSA	?	?	?	8
Walker County 9-1-1	WALKER	Cassidian	Vesta Sentinel	Vesta 4.0	8
Washington County 9-1-1	WASHINGTON	Cassidian	Sentinel Patriot	Patriot	3
Wilcox County 9-1-1	WILCOX	Tritech	Quicklink 2007	Quicklink 2007	5
Winston County 9-1-1	WINSTON	Cassidian	TCI NDT	NDT	8

Answers to ANGEN – ASA Data Center Questions

**Huntsville - Alabama Supercomputer Center**

686 Discovery Drive  
 Huntsville, AL 35806  
 1<sup>st</sup> floor computer room #132

This facility houses the ASC and most technical staff who monitor and manage the Alabama Research and Education Network (AREN). ANGEN rides many of the AREN facilities with the exception of last mile connections to PSAPs.

Access to the ASC is controlled and managed by ASC staff and there have been no issues gaining access at any time as this facility is staffed 24x7x365.

Each wireless carrier serving Alabama has T1 circuit(s) terminated at this facility from their MSCs.

**Montgomery - Retirement System of Alabama (RSA) Tower**

201 S. Union St.  
 Montgomery, AL 36104  
 4<sup>th</sup> Floor Data Center

ASC is one of many government tenants in this facility so access is managed and coordinated. This facility can be accessed after hours or on weekends with coordination, but the data center is not staffed outside normal business hours.

With the exception of one regional wireless carrier, all carriers duplicate their T1 connections at Montgomery.

General Information

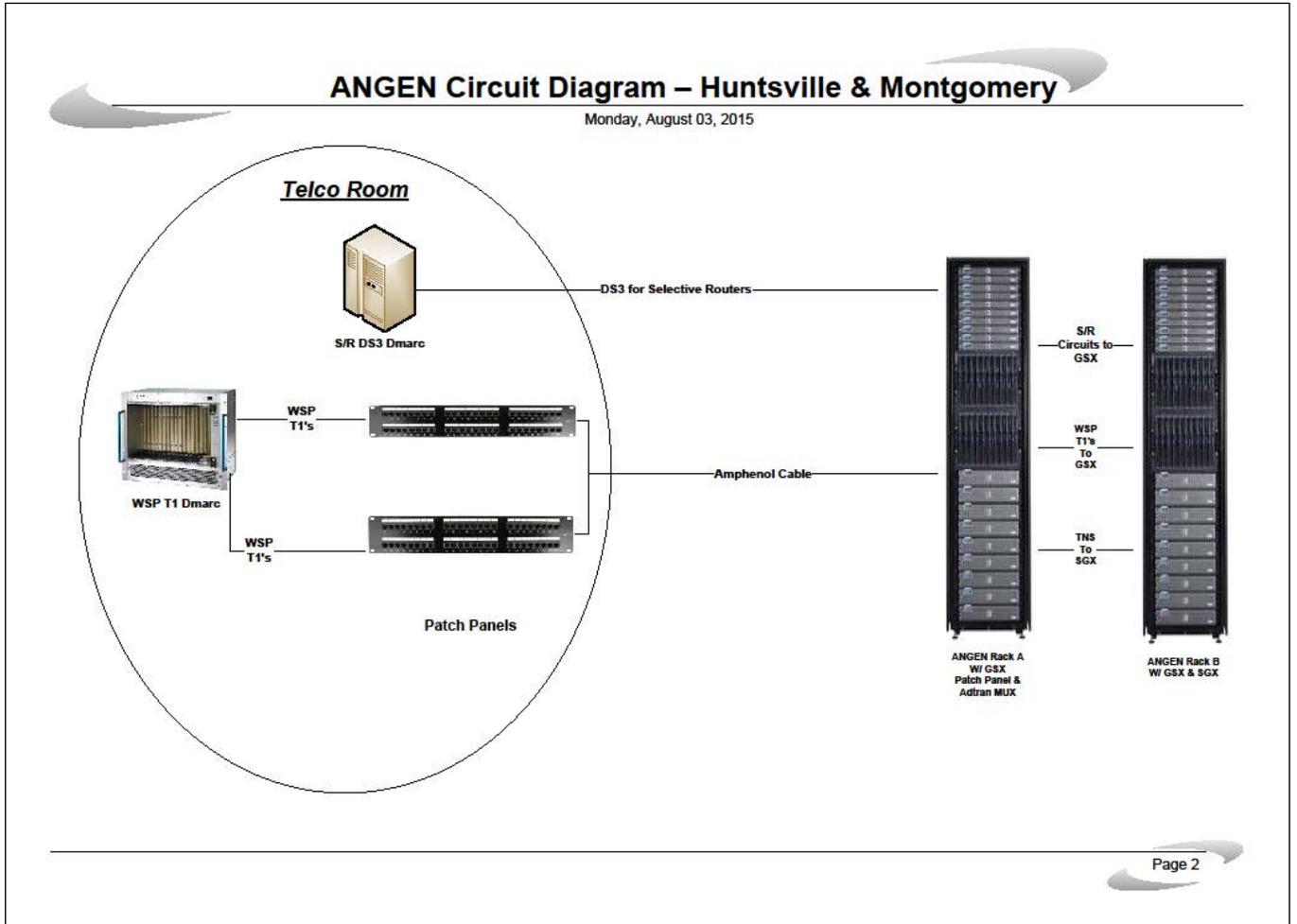
9-1-1 calls arrive via SS7 on T1s and are routed to the seven legacy selective routers via the same.

Either core facility can handle the call volume for Alabama and this has occurred.

ANGEN assigned a primary and secondary core facility for each PSAP. The call load is reasonably balanced between the two facilities.

AT&T Wireless is the exception to the primary/secondary policy, AT&T routes calls from each MSC alternately between the two core facilities without regard for geography.

The diagram below provides additional details on the connectivity and equipment used in the current ANGEN solution.



The table below provides information regarding the ANGEN Huntsville Circuits

ANGEN Huntsville CCRF Cross-Connect Information as of 7/2015										
Circuit ID	ANGEN BWC Trunk Grp	Carrier	Carrier MSC	Smart Shelf 1	Smart Shelf 2	Telect Panel (server room)	Telect Panel (ANGEN rack)	GSX01	GSX02	COMMENTS
10DHXM/506183	BW C1234	T-MOBILE	MIRAMAR	1		8	8	8		
A4HCGS/833846	BW C1275	Sprint	NASHVILLE	2		7	7	10		
A4HCGS/835171	BW C1238	VZW	MACON	3	9	11	11	11		
10DHXM/542395	BW C1235	T-Mobile	ATLANTA	4		9	9	9		
A4HCGS/833398	BW C1273	Sprint	NORCROSS	10		24	24	1		
A4HCGS/835172	BW C1247	VZW	BIRMINGHAM		10	14	14	14		
A4HCGS/835173	BW C1247	VZW	BIRMINGHAM		11	15	15	15		
A4HCGS/835174	BW C1245	VZW	BIRMINGHAM		19	16	16	16		
A4HCGS/835175	BW C1245	VZW	BIRMINGHAM		13	17	17	17		
A4HCGS/833440	BW C1249	VZW	ENTERPRISE	16		18	18	18		
A4HCGS/833484	BW C1259	ATT	MOBILE	17		20	20	20		
A4HCGS/833397	BW C1241	VZW	PENSACOLA	18		19	19	19		
A4HCGS/833490	BW C1253	ATT	BIRMINGHAM	19		21	21	21		
A4HCGS/833512	BW C1243	Southernl	LONGMONT	21		25	25	24		
A4HCGS/833589	BW C1267	ATT	DECATUR, GA	23		1	1	3		
A4HCGS/833599	BW C1263	ATT	BIRMINGHAM	24		2	2	4		
										To SGX
A4HCGS/832186	EGRESS	TNS	ROCKHILL			28	28			
A4HCGS/832259	EGRESS	TNS	MATON	27		27	27			To SGX
A4HCGS/833657	BW C1269	T-Mobile (13)	MCLEAN		1	6	6	9		Level 3
A4HCGS/833619	BW C1271	ATT	DECATUR, GA		3	3	3	8		
A4HCGS/833655	BW C1261	ATT	ISDN		4	5	5	7		10 Digit Failover
A4HCGS/833997		PINEBELT	Selma		5	10	10	11		
10.DHMM.542593		C-Spire	JACKSON	22		12	12	12		
A4HCGS/433045	EGRESS DIVERSITY (EARTHLINK)	TNS		8		22	22	4		TNS diversity
10.DHMM.542587		C-Spire	SEMMES	5		13	13	13		
A4HCGS/835325		C-Spire	SEMMES		12	4	4	5		New Circuit - not turned up

The table below provides information regarding the ANGEN Montgomery Circuits

ANGEN Montgomery CRF Cross-Connect Information as of 7/2015													
Circuit ID	ANGEN BMC Trunk Grp	Carrier	Carrier MSC	Smart Shelf 1	Smart Shelf 2	Telet Panel 1 (server room)	Telet Panel 2 (server room)	Telet Panel 1 (ANGEN rad)	Telet Panel 2 (ANGEN rad)	GSX01	GSX02	COMMENTS	
AHCGS-414180	BMC1240	VZN	PRISACOLA	21		12		12		12			
AHCGS-414165	BMC1272	SPRINT	NORROSS	22		20		20		20			
AHCGS-414225	BMC1252	ATT	BIRMINGHAM	23		21		21		21			
AHCGS-414232	BMC1258	ATT	MOBILE	24		22		22		22			
AHCGS-414233	BMC1242	SUNG	MAM	25		23		23		23			
AHCGS-414277		??		27		24		24		24		Possible disco??	
AHCGS-414545	BMC1274	SPRINT	NSHVILLE	28			1		1		12		
AHCGS-414295		XO	MOBILE		1	1		1		11		Possible disco??	
10D-FM1581681	BMC1276	CSPIRE	JACKSON		2	2		2			4		
AHCGS-414337	BMC1266	ATT	DECATUR		3	3		3			5		
AHCGS-414352	BMC1262	ATT	BIRMINGHAM		4	4		4			6		
AHCGS-414641		TNS	MADISON		6	27		27					to SGX01 (rattcon) to SGX02 (rodkill). Comes in via d3 on port 8 of Adrian MLX
AHFCFS-414655		TNS	ROCKHILL										
AHCGS-414378	BMC1270	ATT	DECATUR		8	7		7			9		
AHCGS-414400	BMC1260	ATT	ISDN		9	26		26			2	10 DIGIT FALLOVER	
AHCGS-414488	BMC1288	TMOBILE (3)	CAV/BRIDGE		10		2		2		11	LEVEL 3	
10D-FM1585715		CSPIRE	SEAVES		11	11		11			7		
AHCGS-415362	BMC1244	VZN	BIRMINGHAM		12	13		13		13			
AHCGS-415363	BMC1244	VZN	BIRMINGHAM		13	14		14		14			
AHCGS-415364	BMC1246	VZN	BIRMINGHAM		14	15		15		15			
AHCGS-415365	BMC1246	VZN	BIRMINGHAM		15	16		16		16			
AHCGS-415366	BMC1239	VZN	MADON		16	18		18		18			
AHCGS-415385		CSPIRE	SEAVES		18	10		10		10			
AHCGS-415882		SPRINT			7	8		8			8	NEW CIRCUIT FOR SPRI	

*- Nothing Follows -*

REQUEST FOR PROPOSAL: AL-NG911-RFP-16-001  
SECTION: 1 GENERAL INSTRUCTIONS 1.11  
PAGE: 7  
ADDENDUM: 2  
DATE: 2/24/2016

To All Potential Respondents:

This addendum is issued to modify the previously issued RFP documents and/or given for informational purposes, and is hereby made a part of the RFP documents. Please attach this addendum to the documents in your possession.

---

### 1.11 CONFIDENTIAL INFORMATION

Respondents are advised that materials contained in proposals are subject to the Alabama Public Records Law (Sec. 36-12-40 Ala. Code 1975, as amended) and the Alabama Bid Law (Sec. 41-16-24 Ala. Code 1975, as amended) and after the contract award, the entire RFP file may be viewed and copied by any member of the public, including news agencies and competitors. Proposals and supporting documents are kept confidential until the evaluation process is complete and a respondent has been selected. Respondents should be aware that any information in a proposal may be subject to disclosure and/or reproduction under Alabama law. All disclosures of proposal information will be made in accordance with the standard procedures of the Alabama Department of Finance. Designation as Proprietary or Confidential may not protect any materials included within the Proposal from disclosure if required by law. Respondents should mark or otherwise designate any material that they feel is proprietary or otherwise confidential. Respondents shall also state any legal authority as to why that material should not be subject to public disclosure under Alabama open records laws and is marked as Proprietary Information. By way of illustration but not limitation, "Proprietary Information" includes trade secrets, inventions, mask works, ideas, processes, formulas, source and object codes, data, programs, other works of authorship, know-how, improvements, discoveries, developments, designs and techniques. Prices are not confidential information.

#### AT&T Response:

AT&T reads and understands. AT&T respectfully requests that information in this document be held confidential by Customer, to the extent allowed under applicable law.

AL-NG911-RFP-16-001 ADDENDUM 3 ATTACHMENT A SAMPLE CONTRACT  
SECTION 34

REQUEST FOR PROPOSAL: AL-NG911-RFP-16-001  
SECTION: ATTACHMENT A SAMPLE CONTRACT  
SECTION 34  
PAGE: 10  
ADDENDUM: 3  
DATE: 2/24/2016

To All Potential Respondents:

This addendum is issued to modify the previously issued RFP documents and/or given for informational purposes, and is hereby made a part of the RFP documents. Please attach this addendum to the documents in your possession.

---

**34. Payments.** All payments shall be made 30 days in arrears by electronic funds transfer to the financial institution designated by the Contractor in writing. No payments will be made in advance of receipt of the goods or services that are the subject of this Contract.

**AT&T Response:**

AT&T has read, understands, and complies.

APPENDIX A1 – Smart911  
Optional Services Offered  
RFP # 16-001 for Next Generation 911



# APPENDIX A1



As an optional feature supplemental to AT&T's response to the State of Alabama 911 Board's Next Generation 911 RFP #16-001, AT&T is pleased to present you this proposal which outlines the elements associated with implementing a state-wide solution for Smart911. This proposed solution includes unlimited Smart911 software licenses across all 88 local 911 districts in the State of Alabama, covering all 118 PSAPs, and all positions from which 911 calls are received across the state.

Smart911 can help to provide the up-to-date tactical intelligence that can make a difference in emergency response outcomes. Information such as how many family members live in a home means knowing whether you have to take that next step back into the fiery dwelling. EMTs can show up with an understanding of a resident's allergies, with proper medication already in hand. What kind of difference could be made if you already knew the floor and apartment number and the dispatcher could reassure that person that help is on the way? How much peace of mind and confidence could come with that much more information?

When dealing with an emergency, first responders need vital information – they need it quickly and accurately. Traditional 9-1-1 services provide operators with only the most basic data – phone number and some level of location information. They then spend vital minutes securing additional information from panicked, frightened or injured callers. Smart911 from AT&T lets citizens create private online profiles that are automatically shared with dispatchers if they call 9-1-1. Law enforcement, fire departments and Emergency Medical Technicians (EMTs) suddenly know more about how to help. This additional information can then be used to improve 9-1-1 call taking, dispatch, and emergency response. Smart911 from AT&T is delivered in collaboration with Rave Mobile Safety, a provider of software for campus and public safety.

## **Smart911 Overview**

Smart911 enables citizens to enter information that they want to make available to 911 operators through a highly secure website at [www.Smart911.com](http://www.Smart911.com). Citizens can enter information about themselves, their family members, their homes and workplaces, medical conditions, children's pictures, descriptions of disabilities, home addresses of cellphone callers and other vital information. For citizens with special needs such as oxygen supplies, dialysis, and other conditions that could need help in an emergency, that information can be entered into the Smart 911 database as well. Creating, maintaining and utilizing this profile is free of charge for citizens. Smart911 delivers this information automatically with a 9-1-1 call to the call taker's work station at participating Public Safety Answering Points (PSAPs). As a national system, Smart911 delivers information for participating individuals to any PSAP in the United States utilizing Smart911.

Smart911 delivers this rich caller information utilizing today's infrastructure and can seamlessly migrate to a NG9-1-1 IP-based system- for simple deployments into any environment. Critical caller data can also be delivered directly to EMS and first responders en-route.

Smart911 is much more than relaying critical citizen provided information. This robust platform can be used to deliver a variety of data types, including video. Smart911 data delivery capabilities can adapt to meet the changing needs of the state of Alabama. Capabilities can be expanded to include panic buttons for schools as well as reporting mechanisms to prepare for potential emergencies or evacuations. Public safety is among the most valuable citizen services. Smart911 from AT&T can provide the State of Alabama with vital tools to better serve its citizens.

### **Product Brief –Potential Benefits**

- Improves 9-1-1 call processing and dispatching effectiveness
- Free to citizens
- Supports citizen demand to easily provide and manage special needs data
- Provides public safety agencies the information they need to assist 9-1-1 callers
- Gives callers peace of mind knowing first responders already have the data necessary to help them
- Operators can more quickly act on data in caller profiles by dispatching law enforcement, firefighters, or medical personnel to the scene with important facts already in hand
- Helps identify critical issues when caller is under duress/stress
- National system works with all call types – Landline, Mobile, VoIP – with real time screen pops accompanying calls
- Shortens the time-consuming process of gathering background information
- Data is validated by citizens regularly, aged data not shown
- Operational procedures reviewed by APCO/NENA
- Works on existing workstations and is CJIS compliant

## Real World Use Cases

The following outline real world use cases where Smart911 can play a critical role in the end-to-end emergency response.



### Missing Child

With Smart911, the 9-1-1 operator can see a high quality photo of the missing child, issue an Amber Alert and forward the photo to field officers immediately after the call. A map of the child's last known location is included.



### Confused or disabled caller

With Smart911, the 9-1-1 operator can view the medical profile of a confused or disabled caller. If an Alzheimer's sufferer cannot remember his/her home address or an Asthma sufferer is unable to speak, the 9-1-1 center will still be able to effectively dispatch help.



### Deaf or hard-of-hearing caller

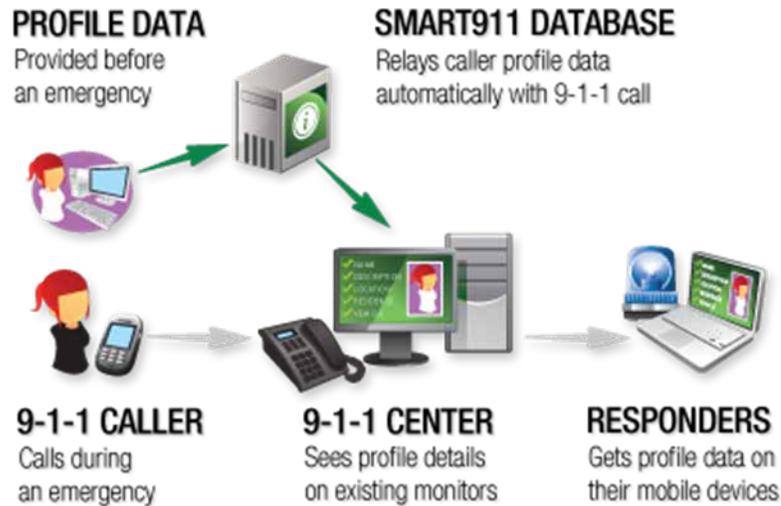
Over 20 million Americans are hard-of-hearing. For these people and anyone else who may have trouble communicating with a 9-1-1 dispatcher over the phone, Smart911 offers an innovative way to both preload data and communicate via SMS.



### Severe Allergies

With Smart911, anytime you dial 9-1-1 the operator will see your name, allergy, and current location on-screen. Even if you're unable to speak, EMS will be dispatched to your location with an EpiPen in hand.

## How Smart911 Works



Residents build their Safety Profile on a secure and private data repository, registering the life-saving information they want to make available to 9-1-1 in the case of an emergency. When the user initiates a 9-1-1 call from a registered phone number, the data automatically displays on the call takers work station, helping them respond more quickly and effectively.



Smart911 allows members of the community to register and provide information about themselves, their family members, their homes and workplaces, medical conditions, and other pertinent information.

	Smart Facilities	Facilities create profiles containing floor plans, key holder, alarm, and Hazmat information, gate/access codes, points of contact, AEDs, and more. Profiles automatically display during 9-1-1 calls and are searchable by authorized users
	Smart Chat	Allows telecommunicators to initiate 2-way text message sessions with any mobile caller regardless of registration with Smart911. Enhances communication capabilities when callers are non-verbal or when calls are abandoned, facilitating an enhanced response.
	Smart Citizen Profiles	Gives PSAPs and first responders access to a 9-1-1 caller's profile: family member info, photos, medical conditions, disabilities, exact addresses, even pet information, to make informed dispatch decisions.
	Smart Notes	Create, annotate, and share secure notes for any telephone number to provide information on prank callers, NSI phones, frequent fliers, transfer histories, and dropped calls.
	Smart Locations	Stream smartphone location information directly to 9-1-1 call takers desktops using proven technologies. This improves indoor and outdoor location accuracy and eliminates the need for rebids.
	Rave Panic Button Data Access	Smart911 provides access to Rave Panic Button data. Dramatically reduces response time for 9-1-1, facility personnel, and first responders. Rave Panic Button instantly alerts 9-1-1 and on-site personnel – speeding up emergency procedures. Campus layout and details are shared with first responders and 9-1-1.
	Smart911 Connect	Provide additional data sources to your call takers and first responders. Smart911Connect lets PSAPs aggregate and automatically securely deliver additional data to telecommunicators from approved third party sources.
	Rave Alert	As an optional add-on, Rave Alert is the only emergency notification system that is fully integrated with the Smart911 system.

## *Scope of Services*

A summary of the components of Smart911 being delivered and the services involved in a deployment follows.

### **Smart911 Components**

- > **Smart911.com citizen registration portal**
  - Hosted, secure web site enabling citizens to register and maintain their profile
  - Unlimited citizens can register and manage their profiles at no cost
- > **Smart911Facility.com Facility registration portal.**
  - Hosted, secure web site enabling facilities to register and maintain their profile
  - Unlimited facilities can register and manage their profiles at no cost
- > **Smart911 SaaS XERDS Server**
  - Hosted, secure online extensible emergency response data service (XERDS) that maintains subscriber account profiles and provides results to CPE Server (or Client Workstation app / First Responder Portal) when queried.
- > **Smart911 First Responder Portal**
  - Hosted, secure online portal providing first responder and dispatchers access to subscriber account profiles for active cases based on userid, password and case ticket number (which is generated by Smart911)
- > **Smart911 CPE Server Software**
  - Software installed on local server which listens to the ALI spill, queries the Smart911 SaaS Server and broadcasts results on the local network to the Smart911 Workstation client.
- > **Smart911 Client Workstation Application**
  - Lightweight application installed on work station that interacts with CPE server to provide call taker or dispatcher with customer profile data via an embedded, pop-up web browser.
- > **Smart911 Administration Portal**
  - Hosted, secure online portal providing administrative functions such as user management and reporting.

### Remote Deployment Services

The following remote deployment steps will be performed to implement these components:

- > **Perform the necessary set up and configurations** to track citizen registrations and PSAP usage data for reporting purposes
- > **Facilitate installation** of the Smart911 Client Workstation Application on all call taker workstations (either CAD or Admin stations) on a remote basis.
- > **Perform the necessary configurations** and testing to provide secure access from the Smart911 CPE Server(s) and Smart911 Client Workstation Applications to the Smart911 SaaS XERDS Server.
- > **Work with Client** to remotely install the Smart911 CPE Server Software on dedicated server(s), connect the server via serial port to the CAD/ALI Spill at necessary locations, and make the necessary configurations to ensure proper parsing of the ALI spill.
- > **Perform testing to ensure proper configuration** and handling of profile display on correct workstations
- > **Set up and provide access information** for administrative accounts

Deployment services include the initial deployment of Smart911. Changes to the customer environment that require an additional installation or configuration will be billed at then current rates.

### Training and Support

To ensure successful operation of the system and integration into various state workflows and processes, Rave will provide the following additional training and support services:

- > **Provide training tools** (PowerPoint decks, Administration Guide, etc)
- > **Provide online reviews** as needed for new feature deployments
- > **Provide 24x7 phone and email technical support** as well as 8x5 phone and email support for non-critical support questions
- > **Provide sample SOPs** and FAQ documents

### Marketing Services

To ensure maximum community awareness, Rave Mobile Safety will provide the following tools:

- > Marketing manager to conduct onboarding and to help plan Smart911 press launch.
- > Marketing best practices guides and Smart911 outreach materials toolkit including flyers, web graphics, social media graphics, and content for presentations and newsletters and eblasts.
- > Targeted monthly marketing campaigns for community outreach and partners.
- > Support from the Smart911 marketing team that provides best practices, resources, and answers any questions.

## Client Responsibilities

---

This project requires technical and operational support within the Client environment as well as marketing support across the supported communities to ensure success. The following outlines expected functions to be performed in support of the Smart911 deployment:

- > **Project management** and executive support
- > **Integration of information** available from Smart911 into the correct PSAP procedures and best practices as well as any training required to ensure proper implementation of those procedures
- > **Support for the technical deployment** providing remote access for Rave Mobile Safety to be able to complete the installation of Smart911 CPE software and Workstation Profile viewer.
- > **Hardware and connectivity.** Client is responsible for all hardware including Smart911 CPE hardware (physical or virtual), firewalls, cables, converters, and splitters.
- > **ANI/ALI Spill.** Client responsible for providing the ANI/ALI spill.
- > **Broad public awareness campaign** to ensure citizen adoption. Examples include: inclusion of registration links on community web sites; inclusion of registration reminders in written communications with citizens; email marketing campaigns; and distribution of registration information through community channels such as schools, elderly centers, hearing disabled communities and libraries.

## Software Costs & Professional Fees

---

### Unlimited Smart911 Licenses for the State of Alabama

Annual Recurring Charge	\$1,200,000.00
One-time remote configuration charge	\$144,000.00



Evolving SaaS-product



Support-driven Analytics



Agnostically Accurate



Custom NG9-1-1 Tools

ECaTS is a Public Safety Intelligence and analytics reporting platform developed exclusively for the 9-1-1 industry providing secure, real-time analytics and Public Safety Intelligence reporting with one simple click.

### ECaTS is for:

Public Safety Administrators to intelligently manage

States to ensure vendors are complying with FCC and adopted NENA standards.

Counties, cities, and regions to deploy and manage ER resources effectively

PSAP managers for staffing and training requirements and manage operations effectively

### Benefits:

ECaTS brings you the power of Statisticians and Business Intelligence consultants just a phone call away

Brings the power of decision making on Public Safety to the city, county, region, and state

With ECaTS you can access your 911 information from your laptop, iPad or phone

Gives the state objective information to manage all public safety vendors

### Features:

- Call Volume Statistics
- Trunk Group Statistics
- System Health Statistics
- Local Call Taker Statistics
- CDR and ALL Information
- PSAP Speed of Answer and Call Taker Answer Time
- Cell Tower Call Transfer
- And much more...

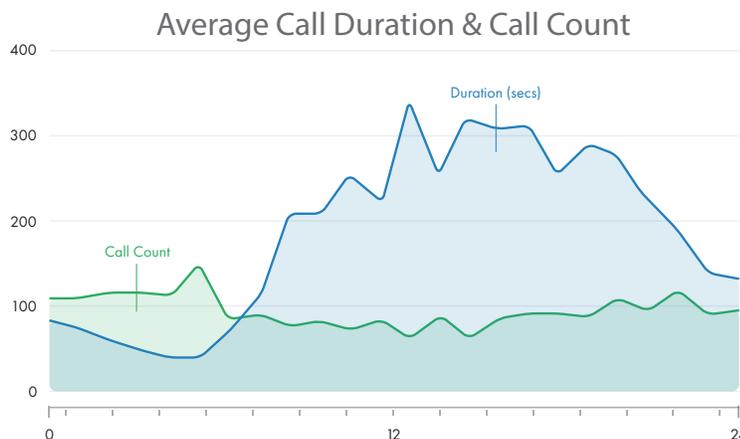
### Contact us for a live demo today

3009 Douglas Blvd. Suite 300  
Roseville, CA 95661 USA

sales@ECaTS911.com

916.787.2200

ecats911.com



### Alicia Fuller

Governor's Office of  
Emergency Services (Cal OES) -  
Program Development Division

"California previously used two disparate 9-1-1 call reporting systems, making uniform call reporting across the state labor intensive and inconsistent.

ECaTS allows California to identify trends, study call traffic patterns, and conduct forensic analysis against the consolidated data records.

The ECaTS Team, including & beyond the client communications specialists, is energetic, passionate, and resourceful, greeting each request with a smile and tackling each question with the tenacity signature of the public safety community."

### Eric Parry

State 9-1-1 Program Manager  
Utah Department of Public Safety

"The state decided to adopt ECaTS because of its multi-functional capabilities and providing decision makers with the data necessary to maximize our emergency call processing capabilities on an individual PSAP or on an aggregated state-wide basis. It is user friendly, intuitive, and is considered "golden" in this state for its many features.

We wholeheartedly consider ECaTS an integral part of our strategic planning and management decision making process."

### Contact us for a live demo today

3009 Douglas Blvd. Suite 300  
Roseville, CA 95661 USA

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[ecats911.com](http://ecats911.com)

**AL-NG911-RFP-16-001**  
**Attachment C – Cost Proposal**  
**Schedule 1 – Equipment and Implementation**

This table indicates the pricing elements identified for requirements defined in AL-NG911 RFP ATTACHMENT D - Technical Specifications, for costs associated with the transfer, modification and implementation of the system (from date of contract execution to the end of the month statewide roll-out is completed). The successful Respondent is to group tasks/deliverables by the areas identified.

Instructions: Please fill in the cells shaded yellow. These items will be used to assign Cost components. Do not fill in the gray and blue cells. Note that the blue cells will populate automatically. Price example - ESInet configured at 8 PSAP's for a total of 80,000. 8 is entered in the unit of measure, \$10,000 entered in the estimated cost

Deliverable / Cost Area	Estimated one time (Nonrecurring - NRC) start up costs, capitol costs etc.			Ongoing monthly recurring costs (MRC)		
	Unit of Measure	Estimated Cost	Extended Price (Unit of Measure x Estimated Cost)	Unit of Measure	Unit Price	Extended Price (QTY x Unit Price)
<b>Section 2 - ANGEN ESInet Requirements</b>						
2.2 ANGEN ESInet Services			\$ -			\$ -
ESInet Deployment		\$ -	\$ -		\$ -	\$ -
PSAP IP Mesh Transport Network		\$ -	\$ -		\$ -	\$ -
IP Core Router Architecture (aggregation service routers)		\$ -	\$ -		\$ -	\$ -
Fiber to the PSAP (high availability option)		\$ -	\$ -		\$ -	\$ -
Commodity IP (tertiary service provider connections)		\$ -	\$ -		\$ -	\$ -
Regulatory and Legislative Support		\$ -	\$ -		\$ -	\$ -
2.3 ANGEN Architecture Requirements		\$ -	\$ -		\$ -	\$ -
2.4 ANGEN ESInet Features and Functions		\$ -	\$ -		\$ -	\$ -
2.5 ANGEN Network Failover		\$ -	\$ -		\$ -	\$ -
2.6 ANGEN Network Security		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ -
<b>Section 3 - ANGEN Specific Requirements</b>						
3.1 System Service Provider Coordination Requirements			\$ -			\$ -
Legacy T-1 Network Transport (OSP to tandems)		\$ -	\$ -		\$ -	\$ -
Originating Service Provider Coordination (wireless carrier)		\$ -	\$ -		\$ -	\$ -
Originating Service Provider Coordination (x-LEC)		\$ -	\$ -		\$ -	\$ -
Voice Message Services		\$ -	\$ -		\$ -	\$ -
Database Server and Software		\$ -	\$ -		\$ -	\$ -
pANI (psuedo ANI) and IP Provider ALI Records		\$ -	\$ -		\$ -	\$ -
Third Party Providers Interfaces (TCS and Intrado E2+ interfaces)		\$ -	\$ -		\$ -	\$ -
Inter-company ALI Server Connections		\$ -	\$ -		\$ -	\$ -
3.2 Interstate Interconnection Requirements		\$ -	\$ -		\$ -	\$ -
3.3 Text to 911 Requirements			\$ -	118	\$ 67.68	\$ 7,986.24
Originating Service Provider coordination (wireless carrier)		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ 7,986.24
<b>Section 4 - ANGEN i3 / NG Core Services Requirements</b>						
4.1 NENA i3 Core Functional Requirements		\$ -	\$ -		\$ -	\$ -
SIP Gateway		\$ -	\$ -		\$ -	\$ -
SS7 Legacy Gateways		\$ -	\$ -		\$ -	\$ -
ALI Interface		\$ -	\$ -		\$ -	\$ -
IP Call Routing Platform		\$ -	\$ -		\$ -	\$ -
4.2 Border Control Function (BCF)		\$ -	\$ -		\$ -	\$ -
4.3 Emergency Call Routing Function (ECRF)		\$ -	\$ -		\$ -	\$ -
4.4 Emergency Services Routing Proxy (ESRP)		\$ -	\$ -		\$ -	\$ -
4.5 Legacy Network Gateway (LNG)		\$ -	\$ -		\$ -	\$ -
4.6 Legacy PSAP Gateway (LPG)		\$ -	\$ -		\$ -	\$ -
4.7 Legacy Selective Router Gateway (LSRG)* if included		\$ -	\$ -		\$ -	\$ -
4.8 Location Validation Function (LVF)		\$ -	\$ -		\$ -	\$ -
4.9 Legacy Database Services		\$ -	\$ -		\$ -	\$ -
4.10 Disaster Recovery / Business Continuity		\$ -	\$ -		\$ -	\$ -
Continuity of Operations (Resiliency)		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>		\$ -	\$ -		\$ -	\$ -
<b>Section 5 - System Reporting and i3 Logging Requirements</b>						
5.1 Reporting and Data Collection System Requirements			\$ -	118	\$ 413.09	\$ 48,744.62
Remote Diagnostics			\$ -		\$ -	\$ -
Performance Monitoring		\$ -	\$ -		\$ -	\$ -
Notification and Escalation		\$ -	\$ -		\$ -	\$ -
5.2 Statewide Statistical Monitoring			\$ -	118	\$ 117.98	\$ 13,921.64
5.3 Operational Reporting and Logging			\$ -	118	\$ 52.25	\$ 6,165.50

Logging Recording			\$ -	4	\$ 209.50	\$ 838.00
System Reporting and Logging Requirements		\$ -	\$ -		\$ -	\$ -
5.4 Local Logging Recorder Interface		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>			\$ -			\$ 69,669.76
<b>Section 6 - Service / Support Requirements</b>						
6.1 Customer Support Services		\$ -	\$ -		\$ -	\$ -
Network Operation, Administration and Management		\$ -	\$ -		\$ -	\$ -
PSAP Alerting and Remote System Status Alarming		\$ -	\$ -		\$ -	\$ -
Quality of Service (QoS) Monitoring and Reporting		\$ -	\$ -		\$ -	\$ -
Service Level Agreement (SLA) Monitoring and Reporting		\$ -	\$ -		\$ -	\$ -
Ongoing Development of New Public Safety Services		\$ -	\$ -		\$ -	\$ -
Spares		\$ -	\$ -		\$ -	\$ -
6.2 Help Desk		\$ -	\$ -		\$ -	\$ -
6.3 Trouble Handling and Ticketing Requirements		\$ -	\$ -		\$ -	\$ -
6.4 Training		\$ -	\$ -		\$ -	\$ -
6.5 Monitoring of Applications and Equipment		\$ -	\$ -		\$ -	\$ -
Intrusion Prevention and Detection		\$ -	\$ -		\$ -	\$ -
Identity and Access Management		\$ -	\$ -		\$ -	\$ -
6.6 Network Operations Center (NOC)		\$ -	\$ -		\$ -	\$ -
6.7 Alarm Categories		\$ -	\$ -		\$ -	\$ -
6.8 Scheduled Maintenance		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>			\$ -			\$ -
<b>Section 7 - Project Management and Planning Requirements</b>						
7.1 Implementation Project Plan		\$ -	\$ -		\$ -	\$ -
Implementation Oversight		\$ -	\$ -		\$ -	\$ -
Cutover Planning		\$ -	\$ -		\$ -	\$ -
Migration Plan		\$ -	\$ -		\$ -	\$ -
7.2 System Test Plan		\$ -	\$ -		\$ -	\$ -
7.3 Transition Plan		\$ -	\$ -		\$ -	\$ -
7.4 Service Management Plan		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>			\$ -			\$ -
<b>Section 8 - Electrical, Wiring, and Cable Requirements</b>						
8.1 Electrical		\$ -	\$ -		\$ -	\$ -
8.2 Electrical Interference		\$ -	\$ -		\$ -	\$ -
8.3 Wiring and Cabling		\$ -	\$ -		\$ -	\$ -
8.4 Grounding		\$ -	\$ -		\$ -	\$ -
8.5 Transient Voltage Surge Suppression		\$ -	\$ -		\$ -	\$ -
<b>Sub-Total</b>			\$ -			\$ -
<b>Total Transfer and Implementation Cost</b>			\$ -			\$ 77,656.00

**Assumptions and Comments**

--



February 23, 2016

Alabama 9-1-1 Board  
1 Commerce Street  
Suite 610  
Montgomery, AL 36104

Re: ALABAMA 9-1-1 BOARD Next Generation 911 Systems and Services RFP  
AL-NG911-RFP-16-001 ("RFP")

To Whom It May Concern:

This letter constitutes the agreement of Intrado Inc. ("Subcontractor") to perform services as a subcontractor to AT&T Services, Inc., for the benefit of the Alabama 9-1-1 Board under the above RFP, pursuant to the terms and conditions of the current agreement between AT&T Services, Inc. and Subcontractor. AT&T agrees to engage Subcontractor for such services.

This letter also serves as an assurance that Intrado Inc. is prepared and willing to carry out the duties and responsibilities as a subcontractor to AT&T in regard to the contract that may result from the RFP.

Sincerely,

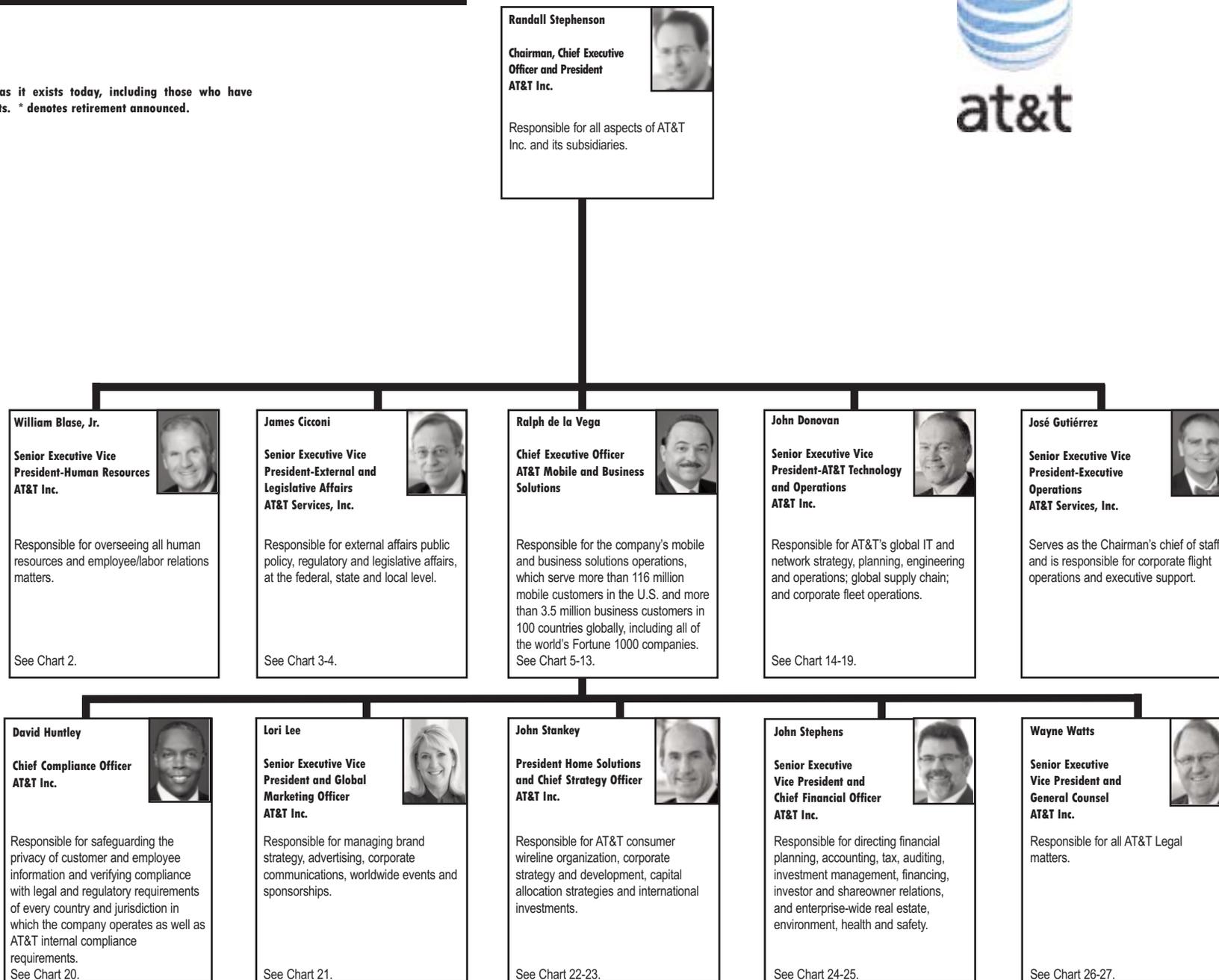
Steve Lowe  
Senior Vice President/General Manager, Government Solutions Division  
Intrado Inc.

AT&T Services, Inc.

# AT&T Inc. Management

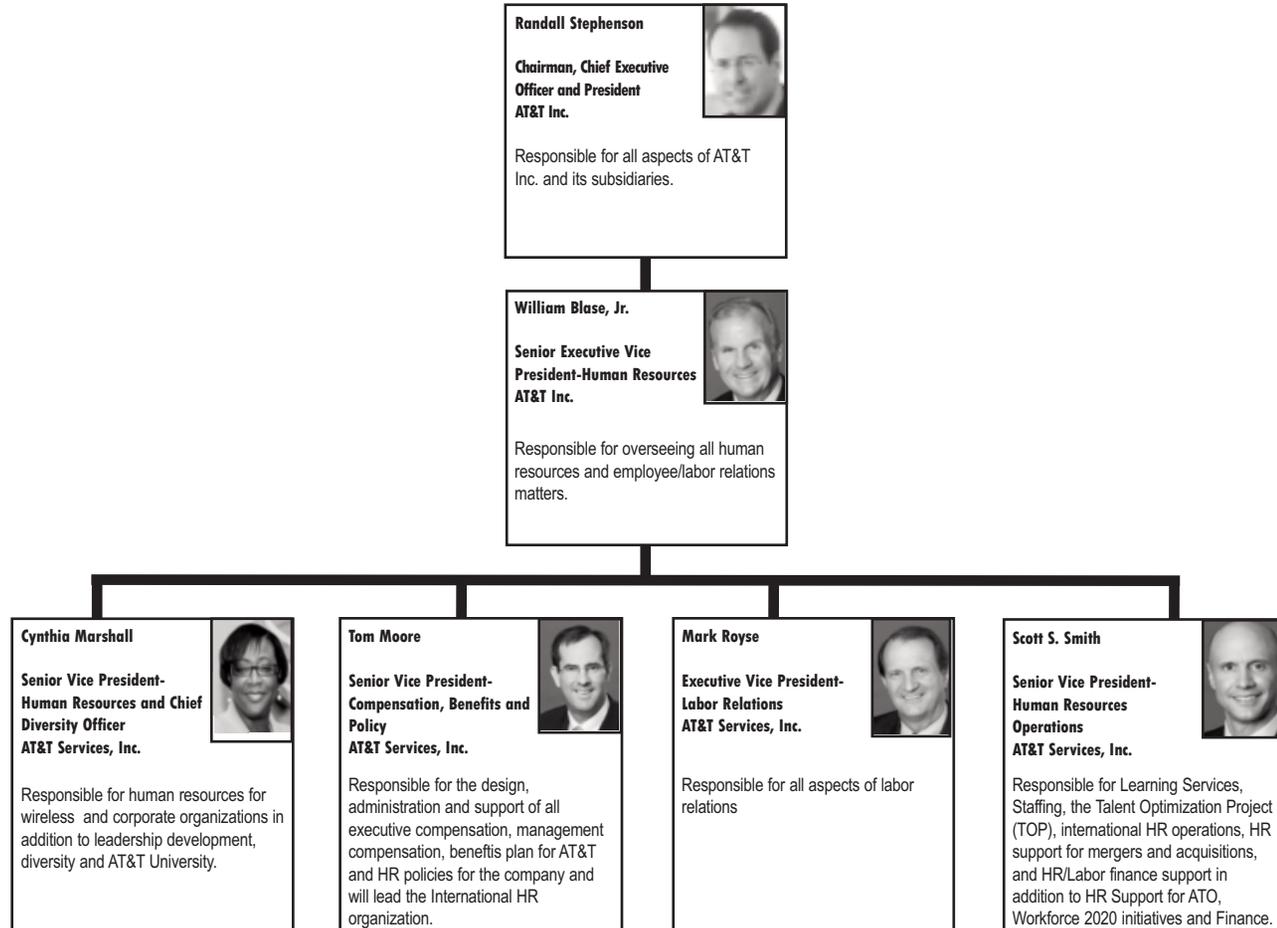
May 1, 2015

This is the officer team as it exists today, including those who have announced their retirements. \* denotes retirement announced.



# AT&T Inc. Management

May 1, 2015



# AT&T Inc. Management

May 1, 2015

**Randall Stephenson**



**Chairman, Chief Executive Officer and President AT&T Inc.**

Responsible for all aspects of AT&T Inc. and its subsidiaries.

**James Cicconi**



**Senior Executive Vice President-External and Legislative Affairs AT&T Services, Inc.**

Responsible for external affairs public policy, regulatory and legislative affairs, at the federal, state and local level.

**Len Cali**



**Senior Vice President-Global Public Policy AT&T Services, Inc.**

Responsible for developing and coordinating AT&T's regulatory policy positions and leading AT&T's international external affairs activities.

**David Condit**



**President-State Legislative and Regulatory Affairs AT&T Services, Inc.**

Responsible for state legislative and regulatory affairs overseeing all of external affairs and regulatory operations in the 50 states.

**Charlene Lake**



**Senior Vice President-Public Affairs and Chief Sustainability Officer AT&T Services, Inc.**

Responsible for leading companywide efforts to achieve a wide range of sustainable company objectives that jointly benefit business and society.

**Tim McKone**



**Executive Vice President-Federal Relations AT&T Services, Inc.**

Responsible for all policy matters before the U.S. Congress and the Administration.

**Bob Quinn**



**Senior Vice President-Federal Regulatory and Chief Privacy Officer AT&T Services, Inc.**

Responsible for management of regulatory matters at the Federal Communications Commission and customer privacy policies at the international, federal and state level across all lines of businesses.

**Tom Synhorst**

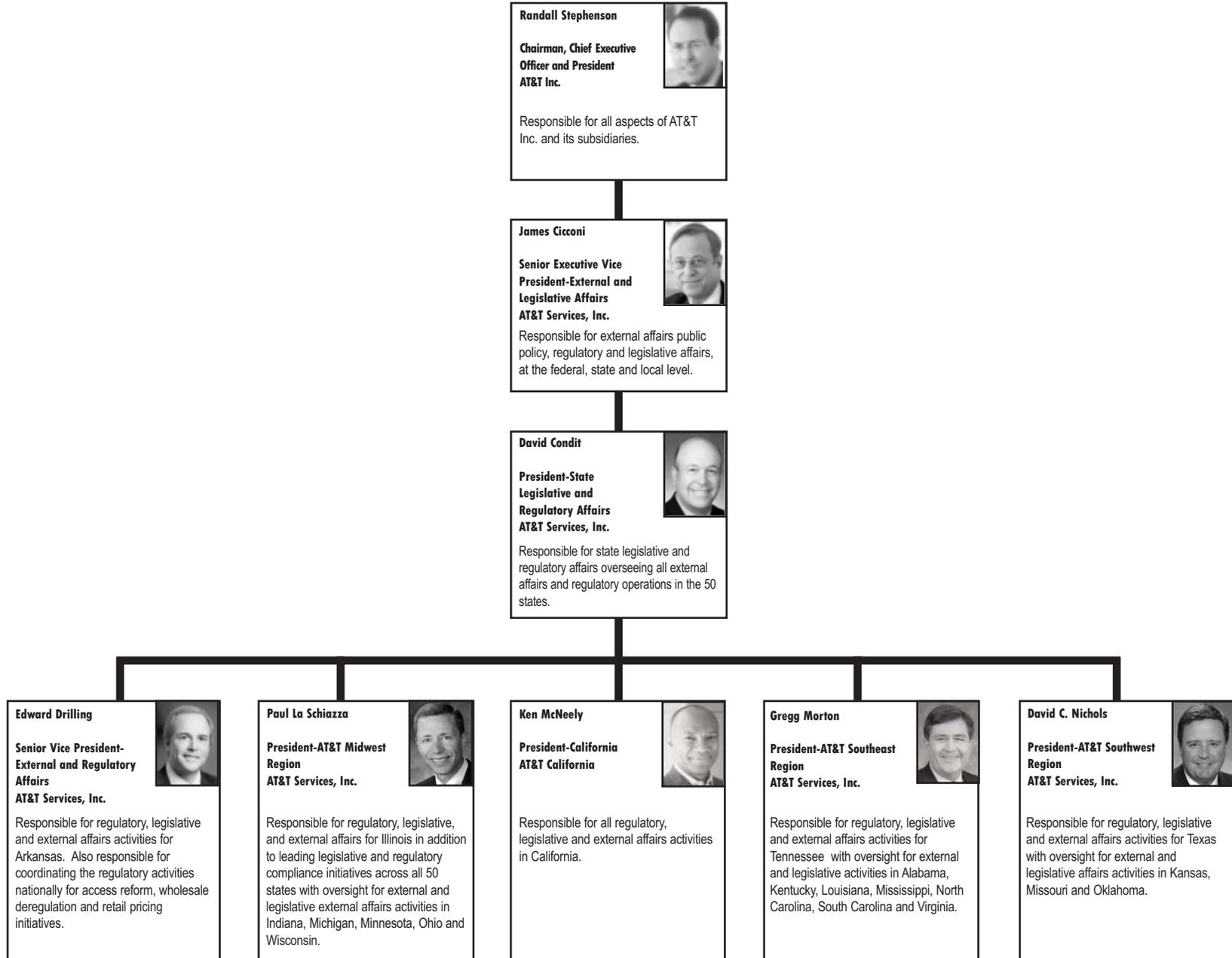


**Senior Counselor to External & Legislative Affairs AT&T Services, Inc.**

Responsible for AT&T's public affairs campaigns in support of the company's IP transition and other important public policy objectives.

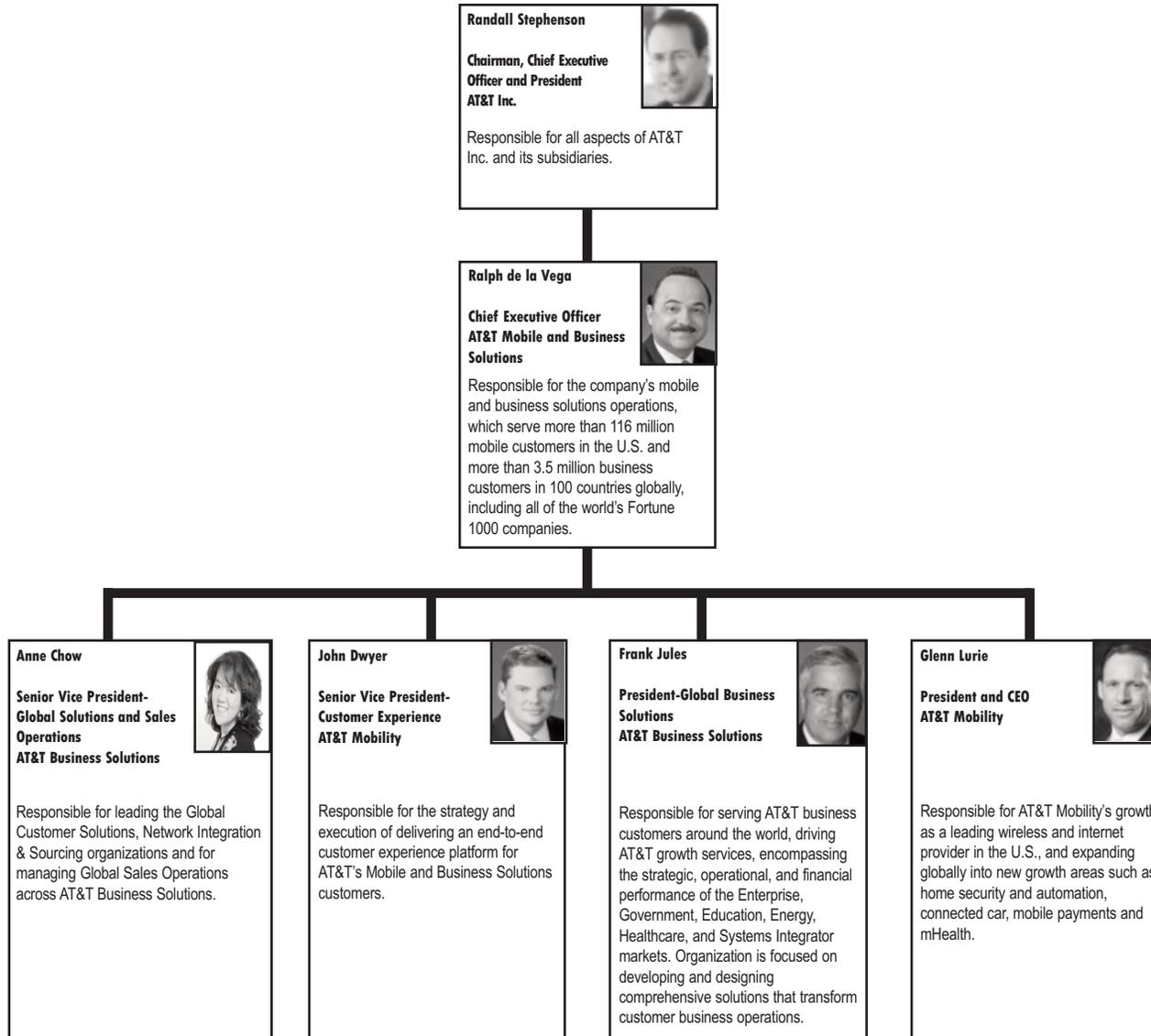
# AT&T Inc. Management

May 1, 2015



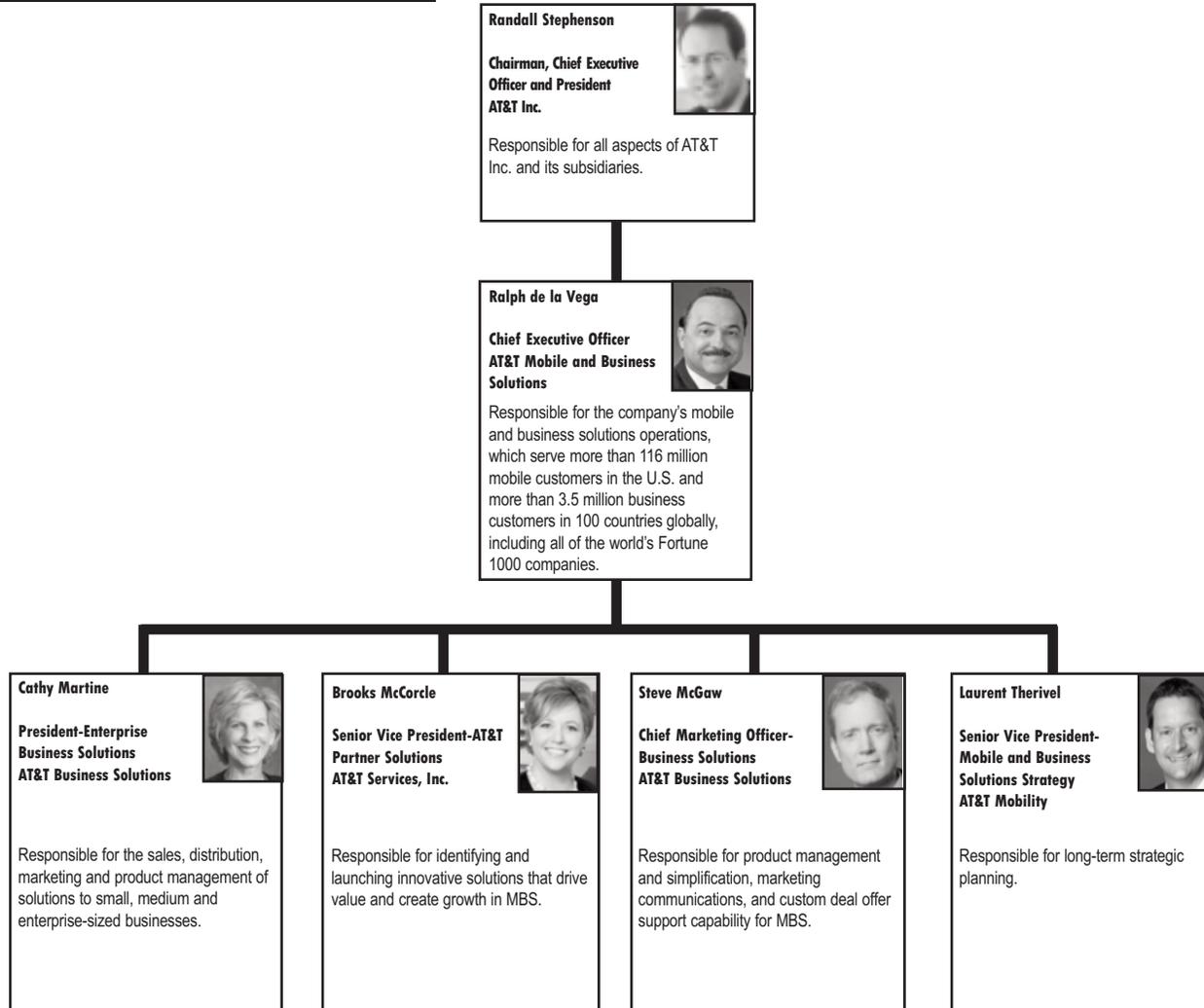
# AT&T Inc. Management

May 1, 2015



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May 1, 2015

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**Ralph de la Vega** 

**Chief Executive Officer AT&T Mobile and Business Solutions**

Responsible for the company's mobile and business solutions operations, which serve more than 116 million mobile customers in the U.S. and more than 3.5 million business customers in 100 countries globally, including all of the world's Fortune 1000 companies.

**Frank Jules** 

**President-Global Business Solutions AT&T Mobile and Business Solutions**

Responsible for serving AT&T business customers around the world, driving AT&T growth services, encompassing the strategic, operational, and financial performance of the Enterprise, Government, Education, Energy, Healthcare, and Systems Integrator markets. Organization is focused on developing and designing comprehensive solutions that transform customer business operations.

**John Finnegan** 

**Senior Vice President-Signature Client Group AT&T Global Services**

Responsible for sales to AT&T's largest global customers headquartered in the United States.

**John Irwin** 

**Senior Vice President-Government, Education and Healthcare AT&T Services, Inc.**

Responsible for state and local government, education and medical (GEM) customers.

**Kay Kapoor** 

**President-AT&T Government Solutions AT&T Business Solutions**

Responsible for delivering network-enabled and IT solutions to the federal government, and creating and delivering professional services' solutions.

**Sal Lipari** 

**Senior Vice President-Systems Integrator Segment AT&T Services, Inc.**

Responsible for global strategy, sales, and management of all business AT&T conducts with System Integrators and management of AT&T's relationship with IBM.

**Dan Walsh** 

**Senior Vice President and Managing Director-Energy Business Solutions AT&T Business Solutions**

Responsible for end-to-end leadership of AT&T's relationship with Shell and also leads the AT&T Energy Solutions Vertical.

**Greg Wieboldt** 

**Senior Vice President-Global Client Group AT&T Global Services**

Responsible for sales to AT&T's largest global customers headquartered outside of the United States.

# AT&T Inc. Management

May 1, 2015

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**Chairman, Chief Executive Officer and President AT&T Inc.**



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**Chief Executive Officer AT&T Mobile and Business Solutions**

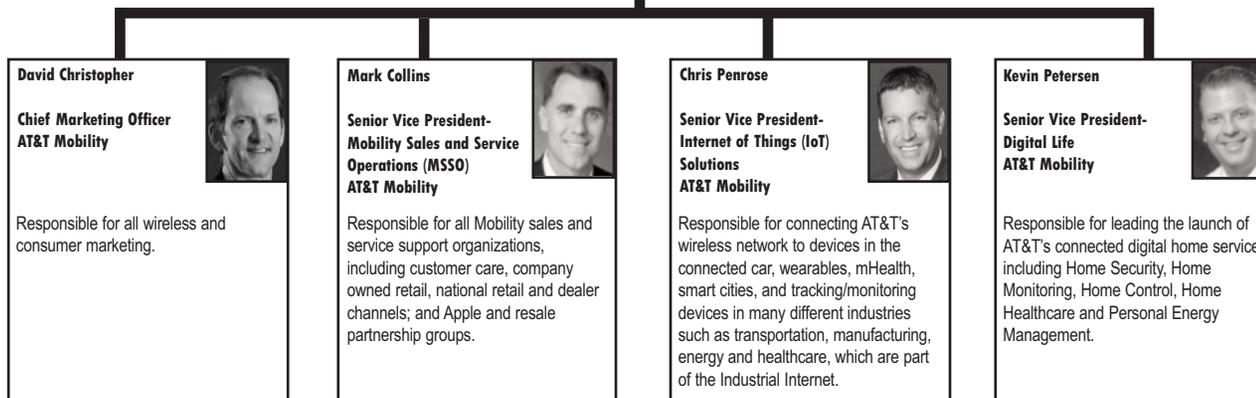


Responsible for the company's mobile and business solutions operations, which serve more than 116 million mobile customers in the U.S. and more than 3.5 million business customers in 100 countries globally, including all of the world's Fortune 1000 companies.

**Glenn Lurie**  
**President and CEO AT&T Mobility**



Responsible for AT&T Mobility's growth as a leading wireless and internet provider in the U.S., and expanding globally into new growth areas such as home security and automation, connected car, mobile payments and mHealth.



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May 1, 2015

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**President and CEO AT&T Mobility**



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**Brian Shay**  
**President-Retail Sales and Service AT&T Mobility**



Responsible for sales and service for all AT&T consumer products in retail channels, including company-owned stores, dealers and national retailers

**Debbie Storey**  
**Executive Vice President-Mobility Customer Service AT&T Mobility**



Responsible for leading AT&T's consumer, business and international sales and service, technical support, chat, and social media customer service teams to best in class in the wireless industry.

**Jennifer Van Buskirk**  
**President-Cricket Wireless AT&T Mobility**



Responsible for combining the best of Aio and Cricket to bring consumers a smart choice in wireless service without an annual contract.

# AT&T Inc. Management

May 1, 2015

**Randall Stephenson**  
**Chairman, Chief Executive Officer and President AT&T Inc.**  
Responsible for all aspects of AT&T Inc. and its subsidiaries.



**Ralph de la Vega**  
**Chief Executive Officer AT&T Mobile and Business Solutions**  
Responsible for the company's mobile and business solutions operations, which serve more than 116 million mobile customers in the U.S. and more than 3.5 million business customers in 100 countries globally, including all of the world's Fortune 1000 companies.



**Glenn Lurie**  
**President and CEO AT&T Mobility**  
Responsible for AT&T Mobility's growth as a leading wireless and internet provider in the U.S., and expanding globally into new growth areas such as home security and automation, connected car, mobile payments and mHealth.



**David Christopher**  
**Chief Marketing Officer AT&T Mobility**  
Responsible for all wireless and consumer marketing.



**Jeff Bradley**  
**Senior Vice President-Device Marketing and Developer Services AT&T Mobility**  
Responsible for delivering the industry's leading portfolio of mobile devices and accessories and to provide third party developers with the tools, platforms and best practices to deliver great mobile apps



**Rudy Hermond**  
**Senior Vice President-Data and Voice Products AT&T Mobility**  
Responsible for voice and data portfolio for Mobility and Customer Markets.



# AT&T Inc. Management

May 1, 2015

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**Chief Executive Officer Mobile and Business Solutions**

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Responsible for AT&T Mobility's growth as a leading wireless and internet provider in the U.S., and expanding globally into new growth areas such as home security and automation, connected car, mobile payments and mHealth.

**Brian Shay**



**President-Retail Sales and Service AT&T Mobility**

Responsible for sales and service for all AT&T consumer products in retail channels, including company-owned stores, dealers and national retailers.

**Fred Devereux**



**Regional President-West AT&T Mobility**

Responsible for Consumer Sales and Operations in the West Region.

**Steve Hodges**



**Regional President-Northeast AT&T Mobility**

Responsible for Consumer Sales and Operations in the Northeast Region.

**Kent Mathy**



**Regional President-Southeast AT&T Mobility**

Responsible for Consumer Sales and Operations in the Southeast Region.

**LeAnn Priebe**



**Regional President-Central AT&T Mobility**

Responsible for Consumer Sales and Operations in the Central Region.

**Andy Shibley**



**Senior Vice President-National Retail AT&T Mobility**

Responsible for Consumer National Retail Operations.

# AT&T Inc. Management

May 1, 2015

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**Ralph de la Vega**  
**Chief Executive Officer Mobile and Business Solutions**



Responsible for the company's mobile and business solutions operations, which serve more than 116 million mobile customers in the U.S. and more than 3.5 million business customers in 100 countries globally, including all of the world's Fortune 1000 companies.

**Cathy Martine**  
**President-Enterprise Business Solutions AT&T Business Solutions**



Responsible for the sales, distribution, marketing and product management of solutions to small, medium and enterprise-sized businesses.

**Charlie Bolton**  
**Senior Vice President-Premier Client Group AT&T Services, Inc.**



Responsible for sales to large enterprise and mid-markets diverse business customers with both global and national needs.

**Kelly King**  
**Senior Vice President-Corporate Business Solutions AT&T Services, Inc.**



Responsible for mid-small business sales, winback and direct channel sales focused on wireless and wireline solutions.

# AT&T Inc. Management

May 1, 2015

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**Chief Executive Officer Mobile and Business Solutions**

Responsible for the company's mobile and business solutions operations, which serve more than 116 million mobile customers in the U.S. and more than 3.5 million business customers in 100 countries globally, including all of the world's Fortune 1000 companies.

**Steve McGaw** 

**Chief Marketing Officer-Business Solutions AT&T Business Solutions**

Responsible for product management and simplification, marketing communications, and custom deal offer support capability for MBS.



# AT&T Inc. Management

May 1, 2015

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**John Donovan** 

**Senior Executive Vice President-AT&T Technology and Operations AT&T Inc.**

Responsible for AT&T's global IT and network strategy, planning, engineering and operations; global supply chain; and corporate fleet operations.



**Bill Hague** 

**Executive Vice President-Global Connection Management AT&T Mobility**

Responsible for developing both international and domestic strategy and partnerships around network access and connection agreements.

**Bill Hogg** 

**President-Technology Development AT&T Services, Inc.**

Responsible for development of AT&T's products and services, digital experiences for customers, and systems supporting all AT&T business segments, networks, and services. He is also responsible information and network security strategy, standards and platform development.

**Victor Nilson** 

**Senior Vice President-Big Data AT&T Services, Inc.**

Responsible for advancing AT&T's Big Data capabilities, including the capture, integration and interpretation of data in ways that evolve customer interaction and enable new revenue opportunities.

**Krish Prabhu** 

**President-AT&T Labs and Chief Technology Officer AT&T Services, Inc.**

Responsible for the company's global technology direction which includes network architecture and evolution as well as network, service and product design. He is also responsible for the intellectual property organization and Global Supply Chain.

**Bill Smith** 

**President-Technology Operations AT&T Services, Inc.**

Responsible for all technical space planning, hardware planning and engineering, compute, storage, customer care and network operations, including integrated IT command and control functions, labs testing functions, global fleet and transportation management.

**Xavier Williams** 

**Executive Vice President-Global Customer Service AT&T Business Services**

Responsible for the post sales customer experience across all wireline and wireless services for AT&T's business customers which includes project management, service delivery, maintenance, billing and service management worldwide.

# AT&T Inc. Management

May 1, 2015

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**Chairman, Chief Executive Officer and President AT&T Inc.**



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**Senior Executive Vice President-AT&T Technology and Operations AT&T Inc.**



Responsible for AT&T's global IT and network strategy, planning, engineering and operations; global supply chain; and corporate fleet operations.

**Bill Hogg**  
**President-Technology Development AT&T Services, Inc.**



Responsible for development of AT&T's products and services, digital experiences for customers, and systems supporting all AT&T business segments, networks, and services. He is also responsible information and network security strategy, standards and platform development.

**Ed Amoroso**  
**Chief Security Officer AT&T Services, Inc.**



Responsible for the protection of AT&T's enterprise, network, and computing infrastructure including information and network security strategy, standards and platform development.

**Melissa Arnoldi**  
**Senior Vice President-Technology Solutions and Business Systems AT&T Services, Inc.**



Responsible for the front door, account management, technology investment portfolio management, end-to-end realization management team and Strategic Program office for the AT&T Architecture Technology Operations organization.

**Teresa Ostapower**  
**Chief Digital Officer AT&T Services, Inc.**



Responsible for leading the Digital First initiative for Mobility Home Solutions and Business with a focus on expanding and accelerating digital capabilities for our customers.

**Pam Parisian**  
**Chief Information Officer AT&T Services, Inc.**



Responsible for the development and support of the primary platforms that enable AT&T's growth businesses and empower AT&T employees to deliver an effortless customer experience.

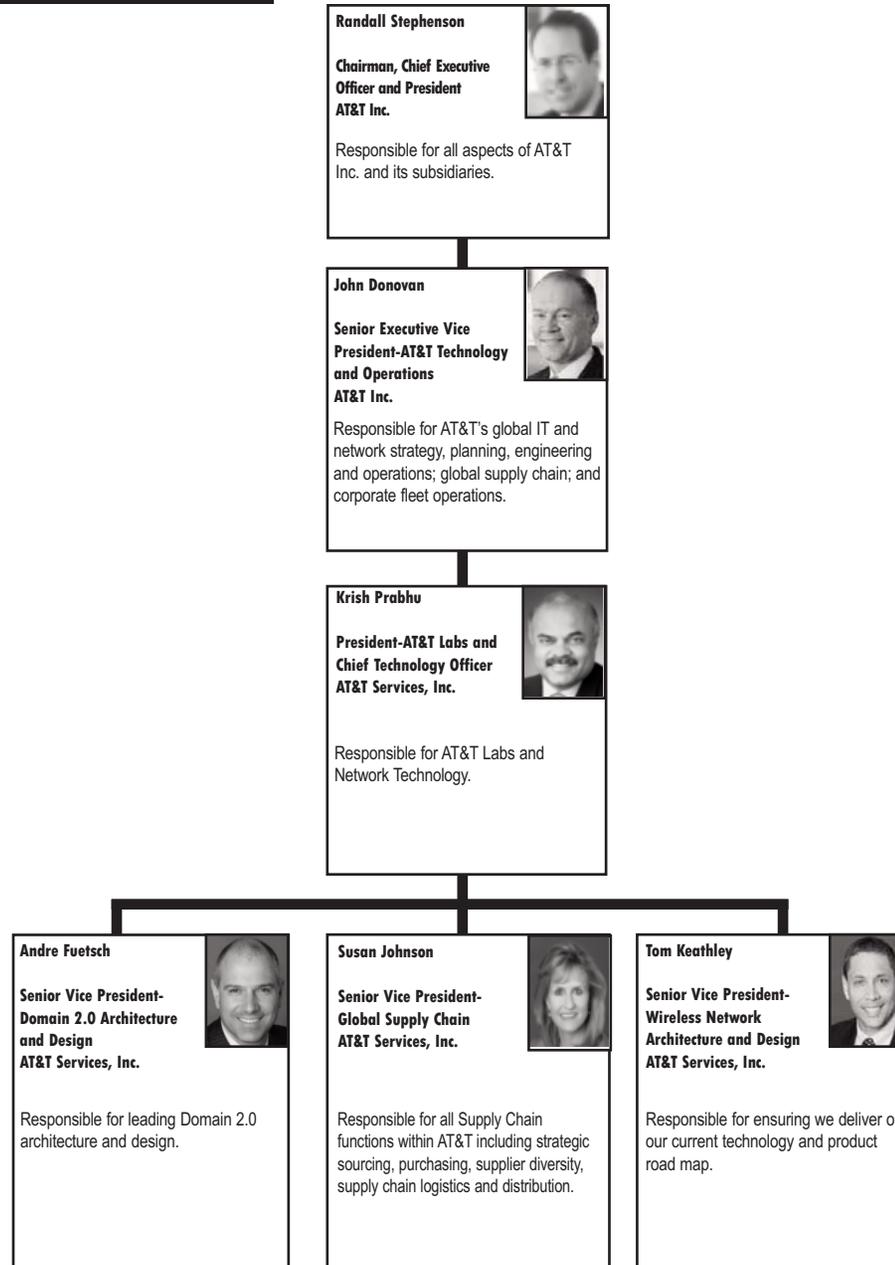
**Sorabh Saxena**  
**Senior Vice President-Software Development and Engineering AT&T Services, Inc.**



Responsible for solution engineering and development of common platforms and services, including cloud and network platforms.

# AT&T Inc. Management

May 1, 2015



# AT&T Inc. Management

May 1, 2015

**Randall Stephenson**



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**John Donovan**



**Senior Executive Vice President-AT&T Technology and Operations AT&T Inc.**

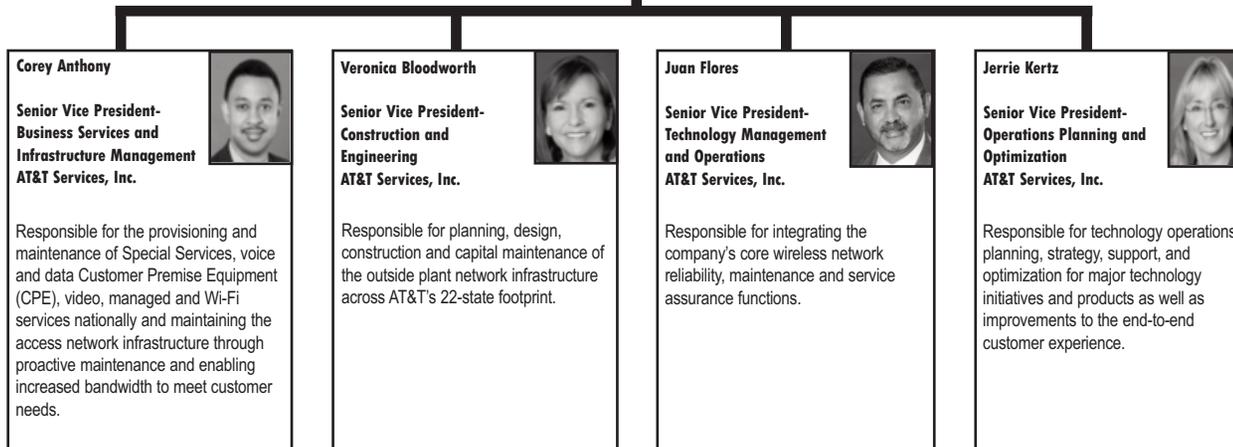
Responsible for AT&T's global IT and network strategy, planning, engineering and operations; global supply chain; and corporate fleet operations.

**Bill Smith**



**President-Technology Operations AT&T Services, Inc.**

Responsible for all technical space planning, hardware planning and engineering, compute, storage, customer care and network operations, including integrated IT command and control functions, labs testing functions, global fleet and transportation management.



**Corey Anthony**



**Senior Vice President-Business Services and Infrastructure Management AT&T Services, Inc.**

Responsible for the provisioning and maintenance of Special Services, voice and data Customer Premise Equipment (CPE), video, managed and Wi-Fi services nationally and maintaining the access network infrastructure through proactive maintenance and enabling increased bandwidth to meet customer needs.

**Veronica Bloodworth**



**Senior Vice President-Construction and Engineering AT&T Services, Inc.**

Responsible for planning, design, construction and capital maintenance of the outside plant network infrastructure across AT&T's 22-state footprint.

**Juan Flores**



**Senior Vice President-Technology Management and Operations AT&T Services, Inc.**

Responsible for integrating the company's core wireless network reliability, maintenance and service assurance functions.

**Jerrie Kertz**



**Senior Vice President-Operations Planning and Optimization AT&T Services, Inc.**

Responsible for technology operations planning, strategy, support, and optimization for major technology initiatives and products as well as improvements to the end-to-end customer experience.

# AT&T Inc. Management

May 1, 2015

**Randall Stephenson**  
**Chairman, Chief Executive Officer and President AT&T Inc.**



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**John Donovan**  
**Senior Executive Vice President-AT&T Technology and Operations AT&T Inc.**



Responsible for AT&T's global IT and network strategy, planning, engineering and operations; global supply chain; and corporate fleet operations.

**Bill Smith**  
**President-Technology Operations AT&T Services, Inc.**



Responsible for all technical space planning, hardware planning and engineering, compute, storage, customer care and network operations, including integrated IT command and control functions, labs testing functions, global fleet and transportation management.

**Gary Ludgood**  
**Senior Vice President-Global Foundational Services AT&T Services, Inc.**



Responsible for technical space infrastructure in which to operate computing and network elements, and core network operations for wireless and wireline services, Undersea Cable and Most of World Field Services.

**Scott Mair**  
**Senior Vice President-Technology Planning and Engineering AT&T Services, Inc.**



Responsible for network planning and engineering for wireline and wireless network infrastructure.

**Randy Tomlin**  
**Senior Vice President-Service Delivery and Assurance AT&T Services, Inc.**



Responsible for providing voice, broadband and video installation and repair service across AT&T's 22-state wireline footprint and the National Dispatch Centers.

**Rick Welday**  
**Senior Vice President-Customer Care AT&T Services, Inc.**



Responsible for call center and chat operations providing service and technical support for AT&T U-verse Video, broadband and narrowband solutions.

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**Xavier Williams** 

**Executive Vice President-Global Customer Service AT&T Business Solutions**

Responsible for the post sales customer experience across all wireline and wireless services for AT&T's business customers which includes project management, service delivery, maintenance, billing and service management worldwide.

**Mike Coffey** 

**Senior Vice President-Service Assurance AT&T Business Solutions**

Responsible for global service assurance, hosting services and business field services operations.

**Thomas Harvey** 

**Senior Vice President-Service Management AT&T Business Solutions**

Responsible for service management and project management functions.

**Bill Huber** 

**Senior Vice President-Federal Government Customer Service AT&T Business Solutions**

Responsible for the service management and life cycle of the civilian and defense agencies.

**Paul Rosenbaum** 

**Senior Vice President-Managed Services AT&T Services, Inc.**

Responsible for global managed and outsourced services and lifecycle management.

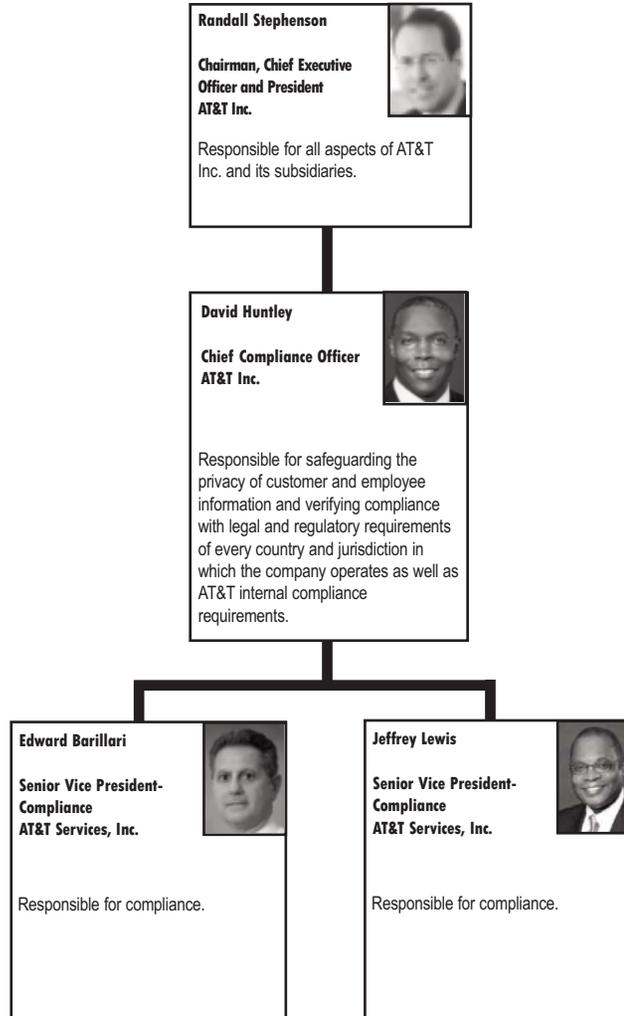
**Steve Stine** 

**Senior Vice President-Service Delivery AT&T Services, Inc.**

Responsible for the critical service delivery operation supporting AT&T Business Solutions and the evolution of the factory, processes and platforms to deliver on our 2020 vision.

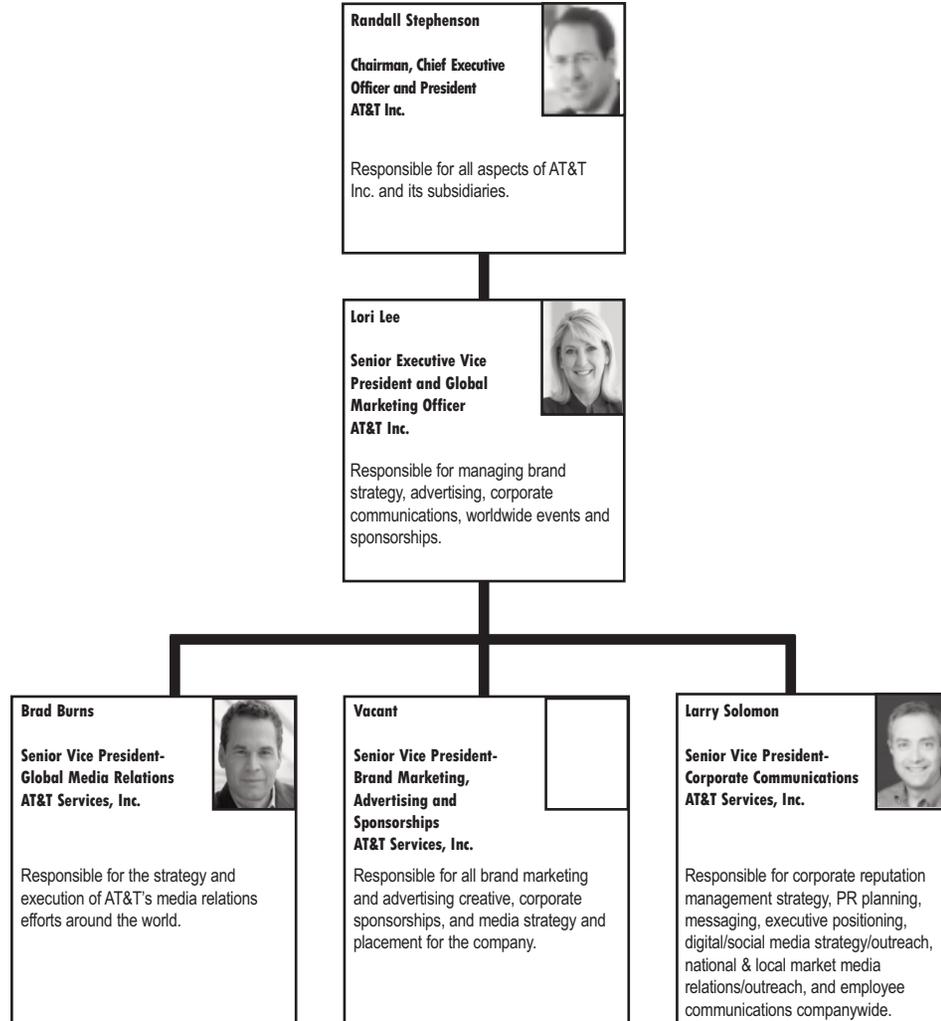
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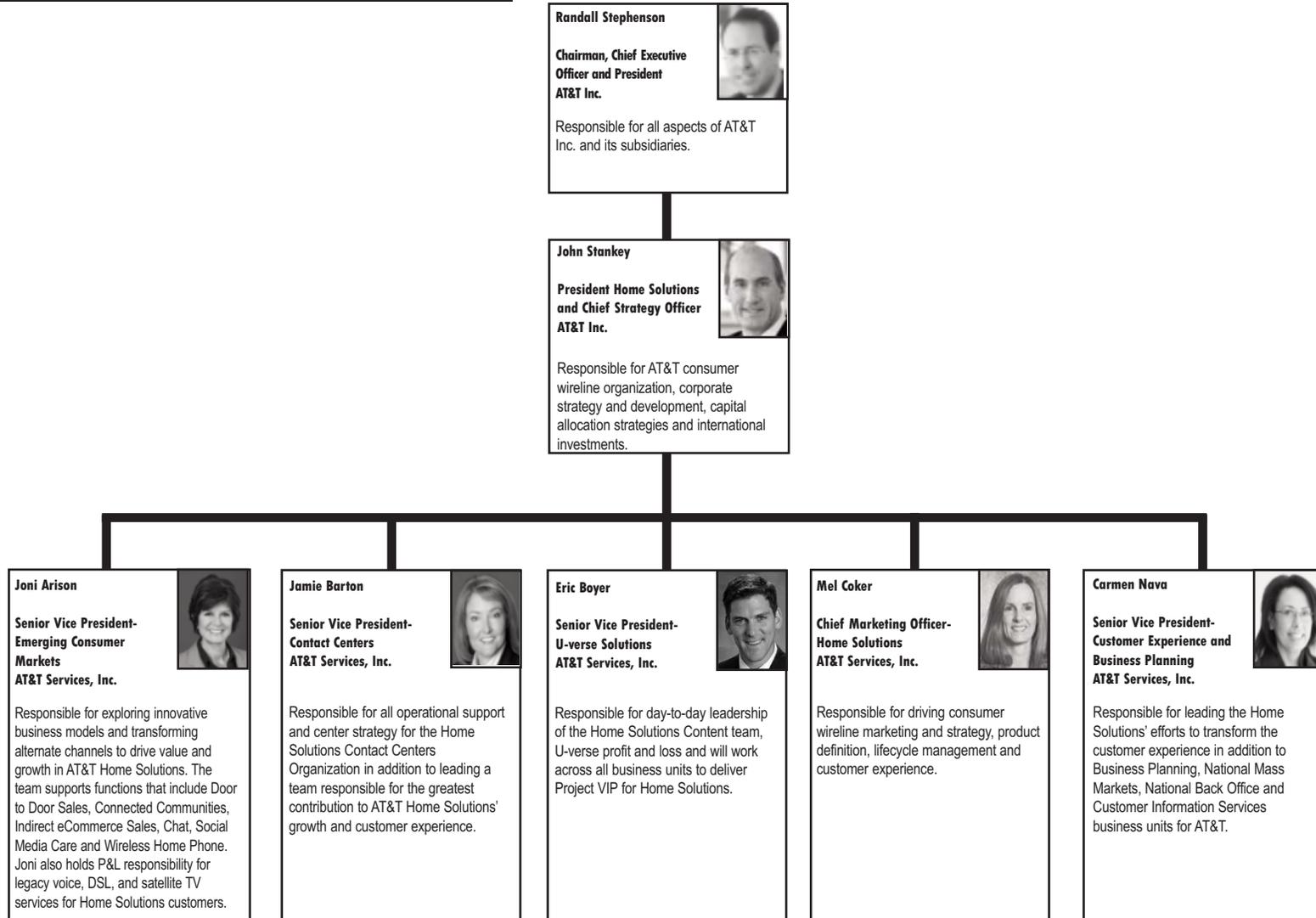
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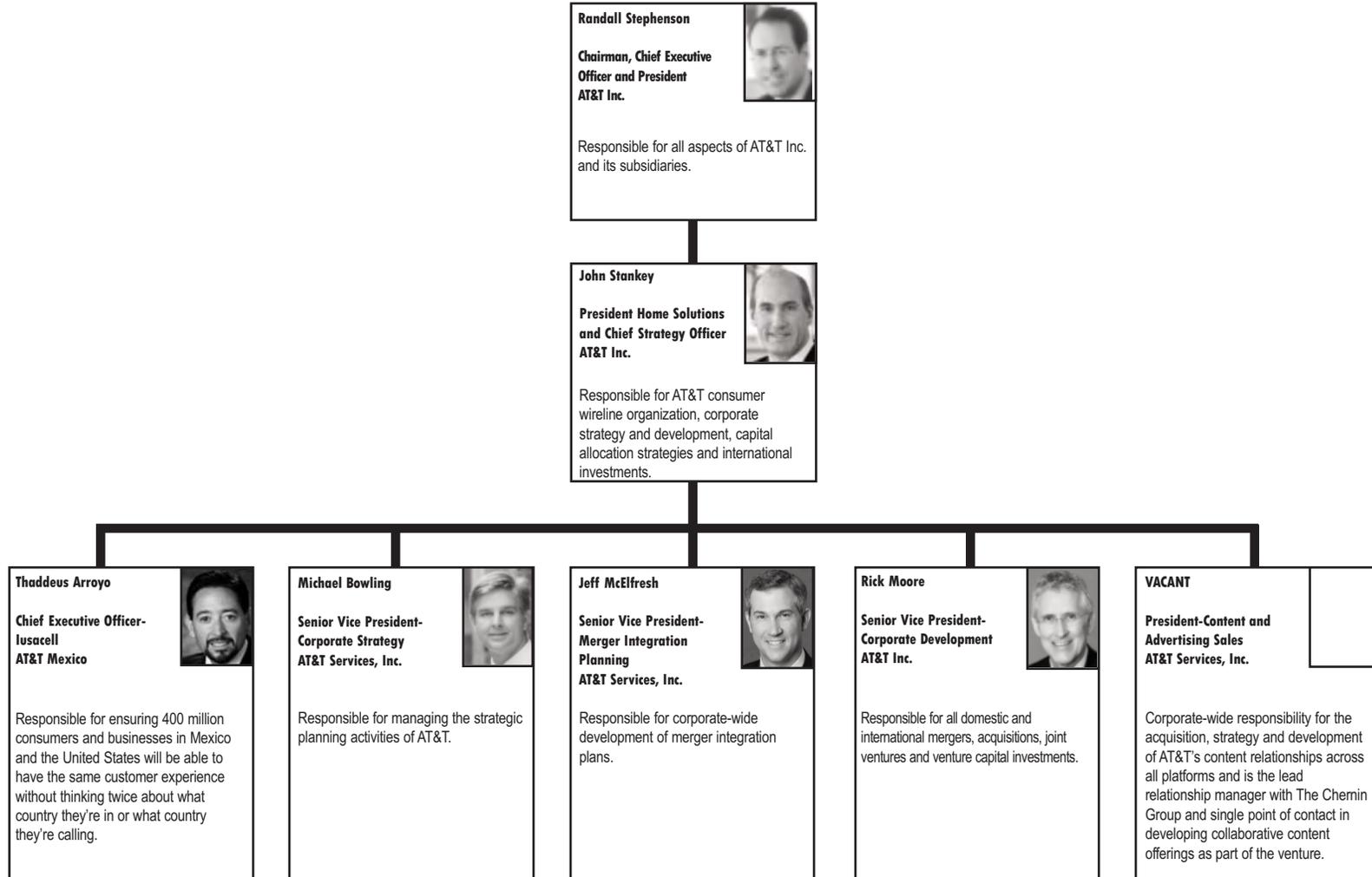
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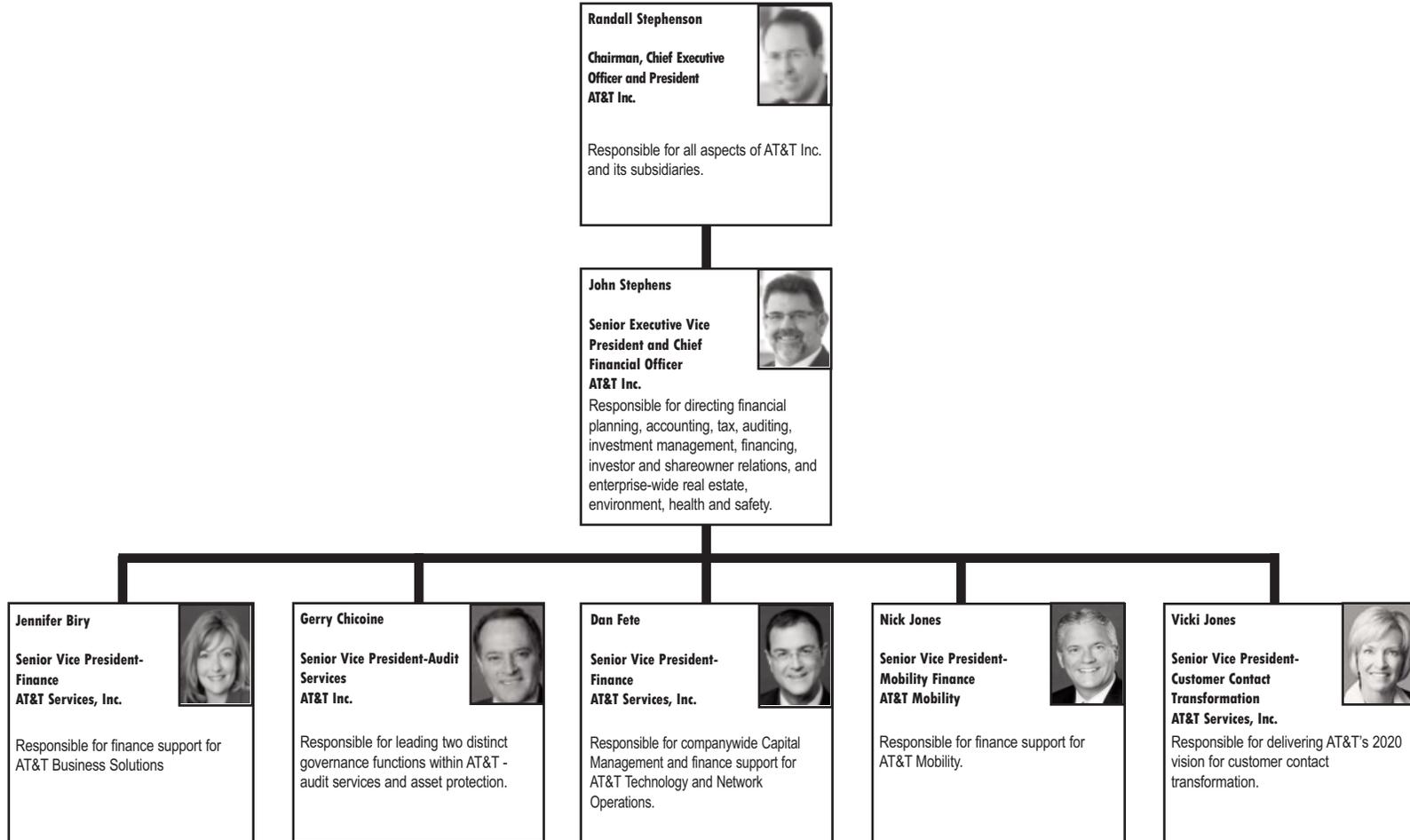
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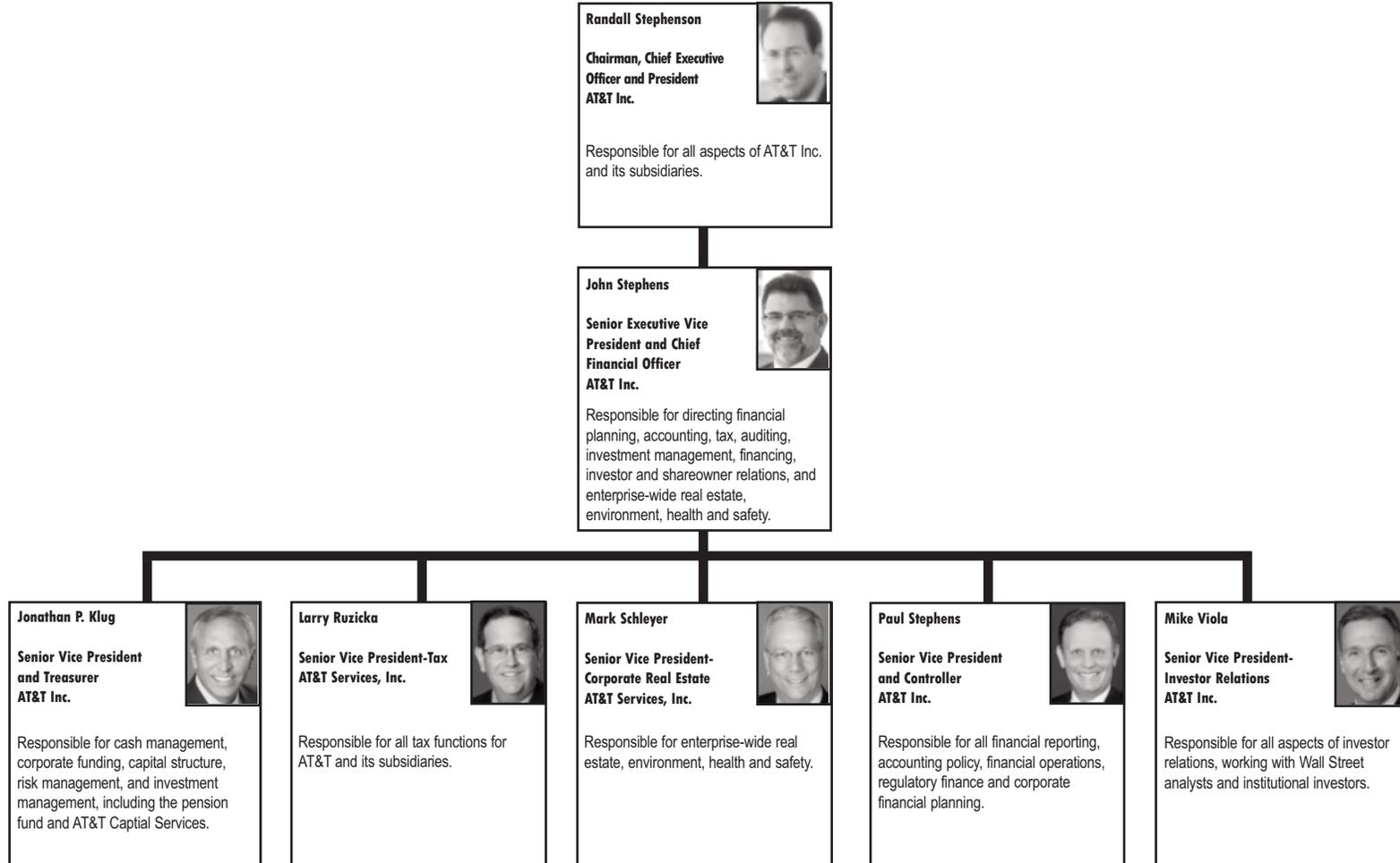
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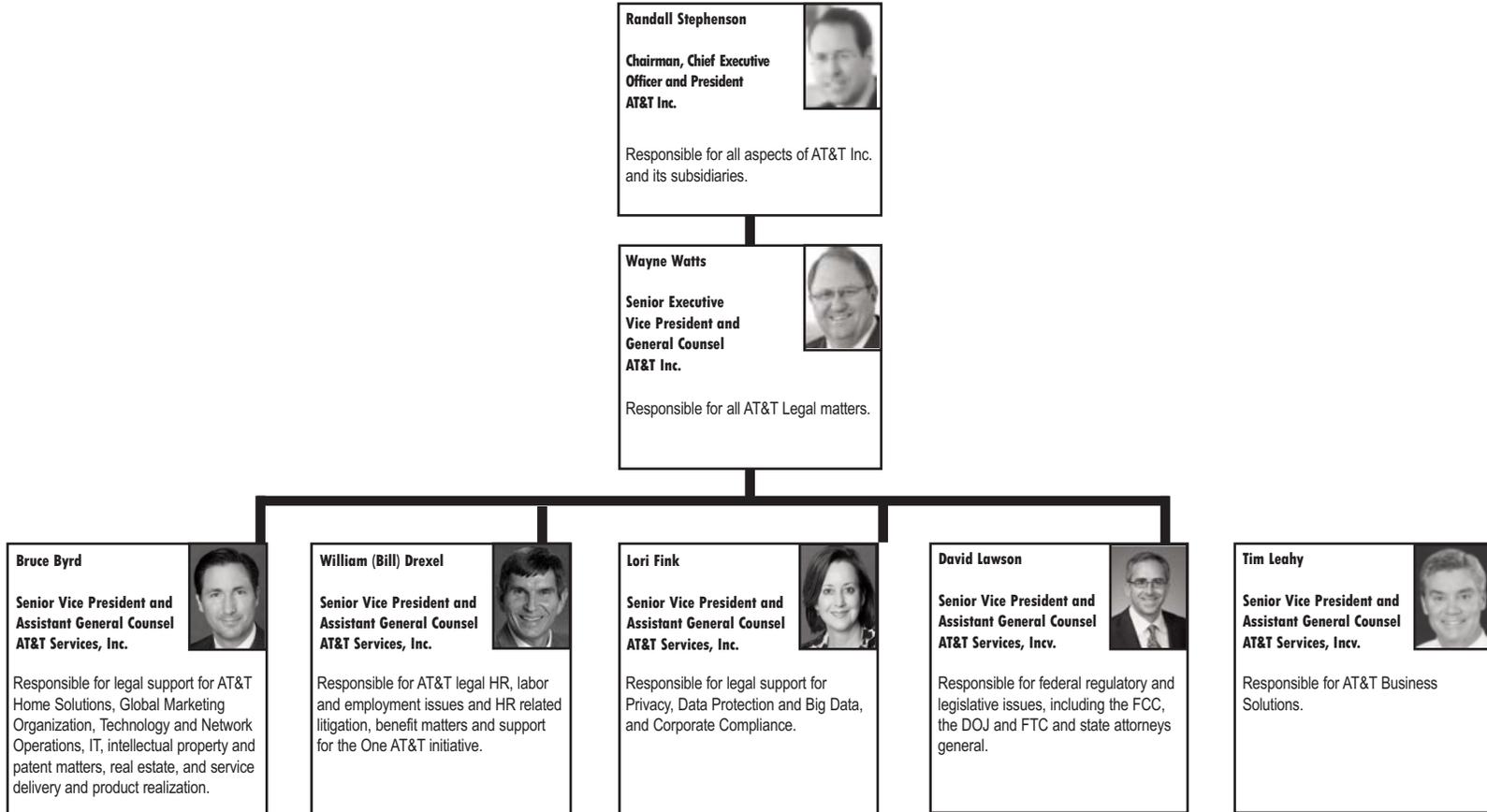
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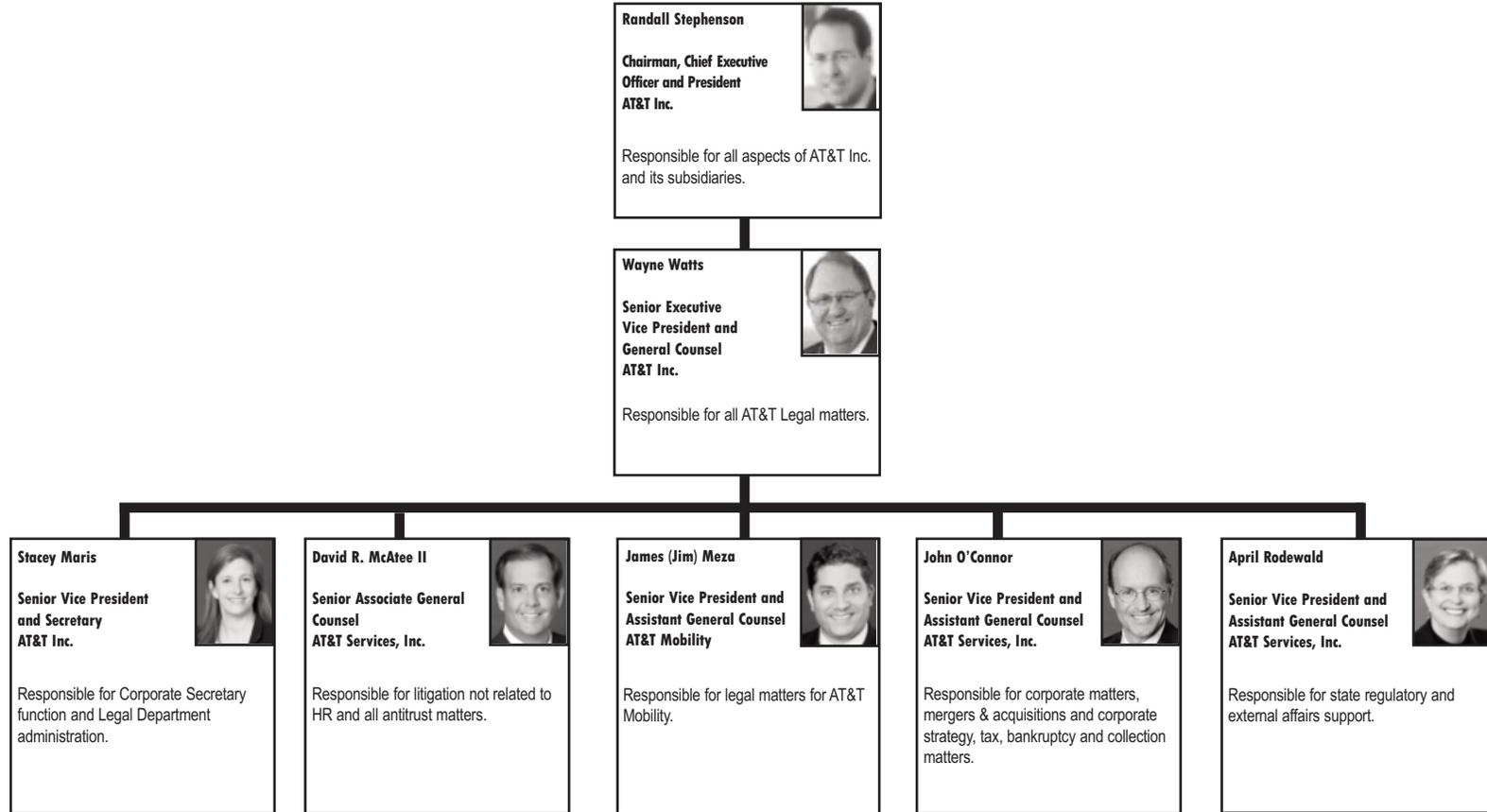
# AT&T Inc. Management

May 1, 2015



# AT&T Inc. Management

May 1, 2015



## GLOSSARY MAY 1, 2015

Last Name	First Name	Page	City	State
Amoroso	Ed	15	Bedminster	New Jersey
Anthony	Corey	17	Dallas	Texas
Arison	Joni	22	Dallas	Texas
Arnoldi	Melissa	15	Dallas	Texas
Arroyo	Thaddeus	23	Mexico	
Barillari	Edward	20	Bedminster	New Jersey
Barton	Jamie	22	Dallas	Texas
Biry	Jennifer	24	Dallas	Texas
Blase, Jr.	William	1	Dallas	Texas
Bloodworth	Veronica	17	Dallas	Texas
Bolton	Charlie	12	Dallas	Texas
Bowling	Michael	23	Dallas	Texas
Boyer	Eric	22	Dallas	Texas
Bradley	Jeff	10	Redmond	Washington
Burns	Brad	21	Dallas	Texas
Byrd	Bruce	26	Dallas	Texas
Cali	Len	3	Washington	DC
Chicoine	Gerry	24	Dallas	Texas
Chow	Anne	5	Dallas	Texas
Christopher	David	8	Atlanta	Georgia
Cicconi	James	1	Washington	DC
Coffey	Mike	19	Dallas	Texas
Coker	Mel	22	Dallas	Texas
Collins	Mark	8	Atlanta	Georgia
Condit	David	3	Washington	DC
de la Vega	Ralph	1	Atlanta	Georgia
Devereux	Fred	11	Redmond	Washington
Donovan	John	1	Dallas	Texas
Drexel	Bill	26	Dallas	Texas
Drilling	Edward	4	Little Rock	Arkansas

Last Name	First Name	Page	City	State
Dwyer	John	5	Atlanta	Georgia
Fete	Dan	24	Dallas	Texas
Fink	Lori	26	Dallas	Texas
Finnegan	John	7	Bedminster	New Jersey
Flores	Juan	17	Dallas	Texas
Fuetsch	Andre	16	Dallas	Texas
Gutiérrez	José	1	Dallas	Texas
Hague	Bill	14	Atlanta	Georgia
Harvey	Thomas	19	Dallas	Texas
Hermond	Rudy	10	Atlanta	Georgia
Hodges	Steve	11	Bedminster	New Jersey
Hogg	Bill	14	Dallas	Texas
Hubbard	Rick	13	Dallas	Texas
Huber	Bill	19	Oakton	Virginia
Huntley	David	1	Dallas	Texas
Ingle	Abhi	13	Dallas	Texas
Irwin	John	7	Atlanta	Georgia
Johnson	Susan	16	Dallas	Texas
Jones	Nick	24	Atlanta	Georgia
Jones	Vicki	24	Dallas	Texas
Jules	Frank	5	Dallas	Texas
Kapoor	Kay	7	Vienna	Virginia
Keathley	Tom	16	Atlanta	Georgia
Kertz	Jerrie	17	Dallas	Texas
King	Kelly	12	Dallas	Texas
Klug	Jonathan P.	25	Dallas	Texas
La Schiazza	Paul	4	Chicago	Illinois
Lake	Charlene	3	Dallas	Texas
Lawson	David	26	Dallas	Texas
Leahy	Tim	26	Dallas	Texas

## GLOSSARY MAY 1, 2015

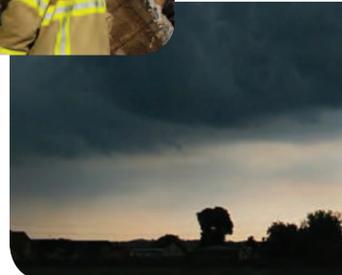
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Lee	Lori	1	Dallas	Texas
Lewis	Jeffrey	20	Dallas	Texas
Lipari	Sal	7	Bedminster	New Jersey
Ludgood	Gary	18	Atlanta	Georgia
Lurie	Glenn	5	Atlanta	Georgia
Mair	Scott	18	Dallas	Texas
Maris	Stacey	27	Dallas	Texas
Marshall	Cynthia	2	Dallas	Texas
Martine	Cathy	6	Bedminster	New Jersey
Mathy	Kent	11	Atlanta	Georgia
McAtee II	David R.	27	Dallas	Texas
McCorcle	Brooks	6	Dallas	Texas
McElfresh	Jeff	23	Dallas	Texas
McGaw	Steve	6	Dallas	Texas
McKone	Tim	3	Washington	DC
McNeely	Ken	4	San Francisco	California
Meza	Jim	27	Atlanta	Georgia
Moore	Rick	23	Dallas	Texas
Moore	Tom	2	Dallas	Texas
Morton	Tom	4	Greenville	South Carolina
Nava	Carmen	22	Dallas	Texas
Nichols	David C.	4	Austin	Texas
Nilson	Victor	14	Dallas	Texas
O'Connor	John	27	Dallas	Texas
Ostapower	Teresa	15	Alpharetta	Georgia
Pacewicz	Roman	13	Dallas	Texas
Parisian	Pam	15	Alpharetta	Georgia
Penrose	Chris	8	Atlanta	Georgia
Petersen	Kevin	8	Atlanta	Georgia
Prabhu	Krish	14	Dallas	Texas

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Priebe	LeAnn	11	Dallas	Texas
Quinn	Bob	3	Washington	DC
Rodewald	April	27	Dallas	Texas
Rosenbaum	Paul	19	Bedminster	New Jersey
Royse	Mark	2	Dallas	Texas
Ruzicka	Larry	25	Dallas	Texas
Saxena	Sorabh	15	Dallas	Texas
Schleyer	Mark	25	Dallas	Texas
Shay	Brian	9	Atlanta	Georgia
Shibley	Andy	11	Atlanta	Georgia
Smith	Bill	14	Dallas	Texas
Smith	Scott S.	2	Dallas	Texas
Solomon	Larry	21	Dallas	Texas
Stankey	John	1	Dallas	Texas
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Storey	Debbie	9	Dallas	Texas
Summers	Jon	13	Dallas	Texas
Synhorst	Tom	3	Washington	DC
Therivel	Laurent	6	Atlanta	Georgia
Tomlin	Randy	18	Dallas	Texas
Van Buskirk	Jennifer	9	Alpharetta	Georgia
Viola	Mike	25	Dallas	Texas
Walsh	Dan	7	Dallas	Texas
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Williams	Xavier	14	Dallas	Texas



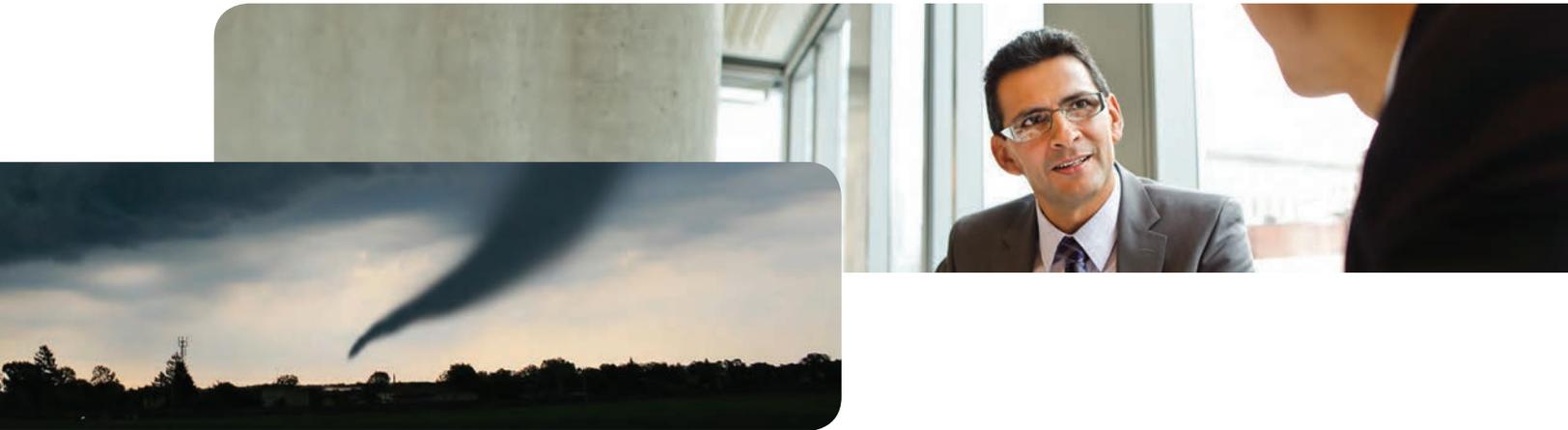
# Business Continuity Preparedness Handbook

*A proactive approach is key  
in an increasingly complex world.*



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Taking a proactive approach to business continuity planning is essential in helping organizations recover from an event with minimal impact to customers, employees and stakeholders. Developing a plan that protects the health and safety of employees and maintains critical business functions requires a comprehensive and cross-organizational planning effort.

## Executive Summary

When it comes to business continuity, taking a proactive planning approach is essential. The increase in various threats that include hackers, cyber-terrorists, natural and man-made disasters, have all played their part in bringing increased awareness to Corporate Executives on the importance of Business Continuity Planning. Disruption of business from any type of “event”, natural or man-made, accidental or intentional, internal or external, with or without prior warning could immediately impact employees, operations, customers, financial and competitive strength, and market share.

This *AT&T Business Continuity Preparedness Handbook* provides an overview of best practices and highlights why taking a proactive approach to business continuity planning and ongoing enforcement is essential for all event scenarios. It also provides a Business Continuity Preparedness self-assessment to help organizations identify potential gaps in their preparedness planning. As illustrated by the 2013 AT&T Business Continuity Survey results included in this handbook, it is critical now more than ever, for organizations to maintain operational effectiveness and flexibility for any scenario-regardless of cause or duration.

This handbook covers the following topics:

- AT&T Alignment with Industry Standards
- 2013 AT&T Business Continuity Survey Results
- AT&T Business Continuity Management Practices
- Business Continuity Preparedness-Best Practices
- Solutions for Business Continuity Strategies
- AT&T Customer Support During an Event
- Additional Resources



## AT&T Alignment with Industry Standards

In March, 2012, the Department of Homeland Security (DHS) announced that AT&T became the first company to be certified to DHS's Voluntary Private Sector Preparedness Program (PS-Prep). PS-Prep™ is a partnership between DHS and the private sector enabling private entities to receive Business Continuity certification. The PS-Prep™ program recognizes private sector organizations that enhance their capabilities for planning, responding to, and recovering from events and other threats. The AT&T Business Continuity Program adheres to the National Incident Management System (NIMS) as suggested by the Department of Homeland Security (DHS) and is:



- Aligned with the ten Disaster Recovery Institute International (DRII) Professional Practices.
- Certified by CTIA as part of their Business Continuity/Disaster Recovery Program since 2004.
- ISO 27001 certified since 2010 in information security and compliance.

“AT&T has a long-standing commitment to business continuity and disaster preparedness. The strength of our continuity program coupled with our industry-leading Global Network Operations Center helps us and our customers effectively continue operations during and after emergencies.”

– John Stankey,  
Chief Strategy Officer for AT&T





## 2013 AT&T Annual Business Continuity Survey Results

With fears of potential security breaches and natural disasters like Superstorm Sandy and the recent Oklahoma tornado weighing heavily on IT executives, businesses nationwide have continued to grow and advance their business continuity and disaster recovery plans to incorporate the adoption of wireless network capabilities, cloud services and mobile applications.

The results for the latest AT&T annual business continuity study bring to light several trends regarding how businesses are preparing themselves for potential disasters and threats. AT&T has conducted this study for twelve consecutive years, surveying IT executives from companies in the United States with at least \$25 million in annual revenue to measure the national pulse on business continuity planning. The 2013 AT&T Business Continuity Study is based on a sample of 500 online surveys among Information Technology (IT) executives with primary responsibility for business continuity planning, 59% of them representing companies with locations outside the U.S. The study was conducted by Research Now between April 30 and May 5, 2013 and had representation as follows:

- 25% in the Northeast
- 25% in the South
- 25% in the Midwest
- 25% in the West

The following highlights some of the 2013 AT&T Business Continuity Study key findings:

With the increase in IT budgets, companies are increasingly leveraging the cloud for their business continuity plans to help minimize the impact of potential threats and disasters.

- 76% (three-fourths) of companies are using cloud or plan to invest in cloud services in 2013. Of those surveyed, 62 percent already include cloud services as part of their corporate infrastructure – up 11 percentage points from the previous year.
- 66% (two-thirds) of companies are using or considering using cloud services to augment their business continuity strategy.
- For disaster recovery purposes, a plurality of companies plan on leveraging cloud computing for data storage (49%).

“Companies today are very aware and concerned about the potential threats that could disrupt their operations. With their business continuity plans in place, businesses are investing in new technologies like network enabled cloud services to help strengthen and expand their overall continuity strategies.”

– Michael Singer, AT&T Assistant VP, Mobile, Cloud and Access Management Security.



## 2013 AT&T Business Continuity Study Key Findings

As companies look beyond the potential impact of natural disasters to the impact of network security events, they continue to expand their disaster plans accordingly.

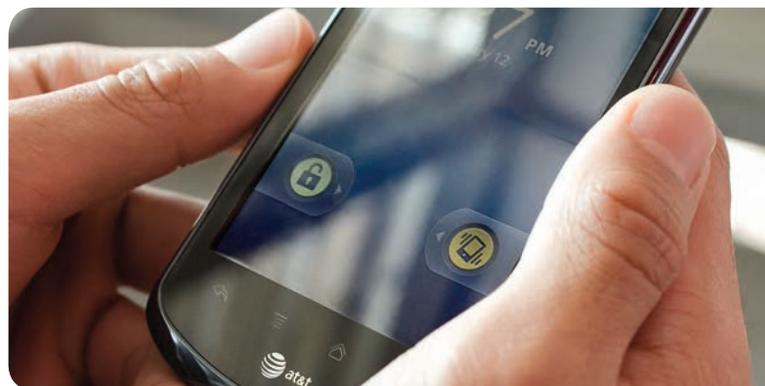
- 78% (three-fourths) of companies indicated that their business continuity plan accommodates the possibility of a network security event.
- 73% (seven out of ten) companies are taking proactive or reactive measures to protect against distributed denial of service (DDoS) attacks.
- 52% are taking proactive measures by identifying potential attacks with DDoS protection services.
- The majority of organizations surveyed invest in mobile security services. Of those companies, 66% take proactive measures against DDoS attacks.

The results for the latest AT&T annual business continuity study shed light on several trends regarding how businesses are preparing themselves for potential disasters and security threats. AT&T has conducted this study for more than ten consecutive years, surveying IT executives from companies in the United States with at least \$25 million in annual revenue to measure the national pulse on business continuity planning.

The increase in Cyber Threats and potential exposure due to mobile device proliferation has influenced this year's responses. More organizations are identifying security as part of their business continuity planning process.

- More than half of executives surveyed (63%) cite the looming threat of security breaches as the most important security concern for 2013.
- 84% of executives are concerned about the use of mobile networks and devices and its impact on security threats.
- 88% of those surveyed understand the increasing importance of security and indicate that their companies have a proactive strategy in place.
- 64% (two-thirds) of companies include their wireless network capabilities as part of their business continuity plan.
- 87% of executives indicate their organizations have a business continuity plan in place in case of a disaster or threat – a slight uptick from last year (86%).

*Almost four out of ten (38%) companies have experienced a DDoS attack in the past 24 months; one out of ten (12%) has experienced this in the past six months.*





## AT&T Business Continuity Management

Planning for and responding to external crises is something that AT&T performs without hesitation and with extensive experience in a wide variety of situations, from hurricanes to floods, to power outages, work stoppage contingency planning, and man-made disasters. AT&T has a global team of experts who practice this response several times per year. Its business continuity efforts include: the day-to-day operational activities required to maintain continued service to its customers; broad scenario planning as well as individual threat assessment and analysis; centralized command and control responsibility; and specific, detailed recovery procedures for critical functions. In disaster planning, AT&T takes appropriate actions to help maintain delivery of its services for customers while considering and addressing the needs of its employees and their families.

AT&T has a team of industry-leading, certified and experienced business continuity experts engaged in the AT&T internal Business Continuity Management program to achieve its business objectives. This team requires that critical functions have documented business continuity plans that are updated and exercised on a predetermined schedule. Plan exercises are designed around specific scenarios to test the viability and capability of the plans. Plan development and plan exercise execution are based on the concept of continuous improvement with the focus of maintaining business operations. As part of that planning, AT&T has performed an extensive corporate-wide risk assessment, and implemented incident response and contingency planning on several broad fronts:

### Employees and Facilities

It is the policy of AT&T to provision and maintain products and services in an environmentally responsible and sustainable manner. The company implements strategies based on best practices to reduce risk and to help mitigate operational impacts during an event. During events, AT&T extensively utilizes text messaging and paging tools to notify employees and our first responder teams; sharing status and providing local resources to impacted employees to assist with their personal recovery needs.

### Business Function

AT&T designs its services to help its critical business functions remain operational and keep customer service impacts to a minimum. Through a comprehensive response, recovery, and restoration program, AT&T helps support reliability of its essential business functions and infrastructures.

### Network Infrastructure

In the event of a disaster, as customers implement their own business continuity plans, a shift in traffic patterns on the AT&T Global Network may result. AT&T proactively plans for these shifts in wireless and wireline voice and data traffic patterns evaluating alternatives to maximize network performance.

“When an event occurs, our top priority is to account for each and every employee as quickly as possible, which allows us to more quickly focus our efforts on responding to our customers’ needs.”

– Steve Waken, AT&T Assistant VP  
Corporate Business Continuity Planning

## Information Technology Service Continuity

The AT&T Information Technology Service Continuity (ITSC) Program is committed to identifying and managing IT-related service continuity risks across the enterprise. The organization has established safeguards to minimize the risk, cost, and duration of disruption to essential business processes in the event of a major crisis or disaster. Accordingly, ITSC has taken a number of steps to increase the reliability of AT&T critical business processes and supporting infrastructures in order to provide high-quality communication services to AT&T customers. This includes up-front prevention and mitigation efforts, as well as comprehensive emergency response and recovery plans in the event of a disaster or crisis.

## Information/Cyber Security

The AT&T Chief Security Office (CSO) establishes policies and requirements, as well as comprehensive programs, to incorporate security into all facets of computing and networking environments. The AT&T security program implements the AT&T security policies through a rich set of initiatives, processes and procedures administered by the AT&T security organization worldwide and certified to the ISO/IEC 27001:2005 Information Security Management Standard. These program initiatives are executed on an ongoing basis by each region and are supported by the global network security teams. The goal of the program is to protect both AT&T and each customer's information and resources.

## AT&T Community Support

When disaster strikes, AT&T is ready to provide meaningful humanitarian assistance to residents and first responders. Together with relief organizations and communities, our people and resources can make a difference and provide critical support to those in need. We're proud to serve our communities by making critical connections in good times and bad.

# AT&T Network Disaster Recovery Capabilities

AT&T developed its Network Disaster Recovery (NDR) capability specifically for rapid service recovery during a wide range of disaster scenarios. Network Disaster Recovery provides business continuity and recovery capabilities for the AT&T Global Network. AT&T has invested more than 600 million dollars in its NDR program since its inception which includes our dedicated recovery fleet with more than 300 trailers and support vehicles. One of the primary roles of the AT&T NDR organization is to recover the services of an AT&T network office that has been completely destroyed or compromised by a natural or man-made disaster. This type of restoration would exceed the normal capabilities of the AT&T network operations maintenance processes and would require long-term deployment of specialized equipment and resources.

The AT&T NDR Team includes AT&T managers, engineers and technicians who have received special training in the physical recovery of the AT&T network. Members participate in several recovery exercises each year to sharpen and practice their skills using NDR's disaster recovery equipment and processes. The exercises test as many of the NDR processes as possible, from the initial team call-out, to equipment transportation and set-up, to technology turn-up and testing. NDR has conducted three or four technology recovery exercises in the field each year since the program's formation in 1992. The NDR Team includes members who have been trained as hazardous materials technicians. This training allows them to perform recovery and maintenance activities in contaminated environments while wearing specialized personal protective equipment. A portion of the team are certified Telecom Hazmat Specialists (North Carolina Occupational Safety and Health Education and Research Center).

- NDR's recovery equipment includes a fleet of specially-designed semi-tractor trailers that contain the same type of equipment that is normally installed in permanent AT&T offices. These technology trailers can be interconnected to recover the capabilities of a network office that has been heavily damaged or destroyed. The equipment is maintained in and deployed from warehouses strategically located around the U.S. and the Europe, Middle East, and Africa (EMEA) region.
- NDR establishes broadband and wireless voice and data connectivity from disaster sites using one or more Emergency Communications Vehicles (ECV). An ECV uses a satellite link to provide NDR with command communications during the initial phase of a recovery effort. The ECVs have also been used to provide command and humanitarian relief communications capability to other responders at the request of the federal government.
- AT&T uses Cells on Wheels (COWs) and Cells on Light Trucks (COLTs), self-contained mobile cell sites, to provide extra cellular capacity to restore communications after a disaster. The mobile sites can be used to replace the service of a failed permanent cell site and they can be used to supplement the cellular capacity of an area that has increased demand. The NDR team uses Satellite COLTs to establish first-in communications when terrestrial connections to the AT&T Network are not immediately available.
- The NDR fleet includes eight mobile command centers. The trailers can be rapidly deployed and set up within an hour of arriving at a recovery site. The command centers have data and voice communications capabilities (provided by the ECVs) and provide NDR's incident command team with a fully-equipped and controlled office space during disaster responses. A base camp can be established that will provide AT&T responders with access to a full kitchen, a dining facility and sleeping quarters. AT&T has a large inventory of MREs (meals ready to eat) and other supplies set aside for use during emergency responses.

## Assess your own level of preparedness with the following questions

### Mitigate Risk, Protect Mission-Critical Resources

*Has the organization assessed the impact of a potential disruption?*

*Has the organization analyzed which business processes, applications, facilities, suppliers or vital records are most critical?*

*Has the organization created a strategy to mitigate risk? Are new scenarios, threats, and vulnerabilities addressed in your planning process?*

*Has the organization developed and exercised a business continuity plan to mitigate business risk?*

*Is this plan maintained and reviewed with the organization's response team on a regular basis?*

*Are key locations hardened and facilities conditioned?*

*What security measures are in place?*

*Do the security measures in place also address potential exposure from cloud and mobile technology?*

### Meet Regulatory Requirements and Customer Service Level Agreements

*Does the organization or its business partners have regulatory mandated performance or availability service levels?*

*Has the organization complied with all current or regulatory requirements or public policy mandates?*

### Invest Wisely

*Has the organization quantified the potential costs of downtime or total business failure?*

*Has the organization developed sound business cases to optimally invest in risk mitigation?*



## Business Continuity Preparedness – Best Practices

All companies and government agencies, regardless of size, need to identify their mission-critical business functions and effectively manage the risks around them, whether from a pandemic, hurricane, earthquake or any other kind of crisis. Mission-critical business functions are those that enable an organization to provide vital services, exercise civil authority, maintain the safety of the general public, or sustain its industrial or economic base. In addition, the complexities of maintaining mobility and wireless capabilities during a disaster or security threat has become increasingly important for businesses as they consider business continuity planning. Taking a proactive approach to business continuity is essential for being prepared to respond when disaster strikes. Plans should specify redundant systems, back-up sites, employee communications and alternative work sites. They also should include a process for maintaining customer communications immediately following the crisis and proceeding until things return to normal.

Business Continuity Planning or, for the federal government, Continuity of Operations Planning (COOP), involves business sustainability through a period of significant interruption caused by a disaster or any other disruptive event. An unplanned interruption could have an impact on national security, citizen services and economic well-being. All federal agencies must have a COOP capability to sustain the performance of these activities during an emergency or situation that may disrupt normal operations.

Business continuity planning is good business practice because it enables organizations to continue their essential functions across a broad spectrum of hazards and emergencies. It is essential for all types of scenarios ranging from system or component failure caused by a software upgrade to a man-made or natural disaster that broadly impacts an organization's physical assets, buildings and/or people. Following is a set of key planning principles that apply to business continuity scenarios in the public or private sector.

The following outlines six key steps in preparing for any type of business continuity process. The more accurate an organization can be in its planning, the more prepared it will be in the long run.

### **Identify Critical Business Processes and Impacts**

The first step is to understand what functions are critical to the business and how different disaster scenarios could impact continuity of operations. For example, how could demand for products and services be affected – will it grow or decline? What is the impact to the organization in terms of leadership, capabilities, security and communications, and what does that mean for the operation of mission-critical functions? The answers to these types of questions could determine the type of response required. This step is vital so that, with delegation of authority or orders of succession established, attention and resources can effectively focus on a rapid response to the situation.

### **Perform Risk Assessment, Mitigation and Management**

To continue with critical business functions in a crisis, it is necessary for an organization to complete a functional risk assessment to help address the essential functions first and make the appropriate investments, in time and money. The risk assessment will identify the functions, processes, resources and suppliers which would have the greatest impact on a company's ability to serve its customers or an agency's ability to achieve its mission objectives. It also involves the identification and assessment of the potential threats, the existing vulnerabilities and the probability that a threat will exploit the identified vulnerabilities. This aids in the identification of relative risk exposure to different components of the organization, so that fact-based decision-making on mitigation plans can occur.

### **Determine Recovery Strategies**

The next step is to define the organization's business continuity strategies. For example, how does the organization want its business to perform and what options are available? Does the organization keep the same service level agreements or does it prioritize work? In addition, alternate facilities and their desirable characteristics must be considered. The results of the risk assessment and the identification of recovery strategies are instrumental in the development of contingency plans to address specific threats.

It is also critical that these activities be accomplished in a methodical and consistent way across organizations so that all parts of the business are preparing for the same scenarios, using the same information to certify that the end-to-end plan is effective.

### **Develop Business Continuity/Disaster Recovery (BC/DR) Plans and Provision DR Capabilities**

Contingency plans should be developed to provide interoperable communication and continuity of critical business operations with key suppliers, or other agencies, until normal operation can be resumed. Delegation of Authority and Orders of Succession support that businesses plan for the loss of leadership so that critical business operations could continue if key executives are incapacitated. Contingency plans should identify not only incremental strategic or procedural changes from existing business continuity plans, but also any gaps in capabilities that need to be addressed. It is important to implement any new capabilities prior to the event occurring, to allow a business to successfully recover at time of disaster (e.g., wired fail-over to Wireless Wide Area Network (WWAN).)

### **Train, Test and Exercise**

Emergency response team members need to be provided opportunities to acquire the skills to perform their assigned business continuity roles. Business continuity plans must be capable of implementation with or without warning. They must be tested on a regular basis and in as real a way as possible to validate their effectiveness when a disaster occurs. This requires the development of a test plan, detailing how a business will test capabilities, as well as an emergency response guidebook. In addition to conducting table top simulation exercises, recovery implementations are necessary to validate operational effectiveness.



### **Monitor and Improve Performance**

Situations evolve over time and are not static. An organization should consider how changes to a situation and the business environment could affect preparedness. To validate that a plan works at the time of a disaster, business continuity plans should be considered an organizational priority and reviewed regularly. In addition, changes to operations must also be reflected in business continuity plans and the emergency response guidebook, whether they are system upgrades, process changes or resource restructuring.



## Planning is Essential

When a disaster strikes, an organization's ability to respond quickly and effectively may be critical in protecting its staff, profits, reputation and essential operations. Developing a plan that protects the health and safety of employees and maintains critical business functions requires a comprehensive and cross-organizational planning effort.

### **Review and Expand Existing Business Continuity Plans to Include Landscape of Threats Over Larger Geographic Regions**

While many organizations have business continuity plans to deal with disruptions, they may not be prepared for an event that could occur on a global scale. Existing business continuity plans should be reviewed and supplemented accordingly to meet the needs of a range of threats.

### **Utilize Credible Sources**

It's important to identify reliable and credible sources of information early on in the planning process and to track developments.

### **Develop Planning Phases with Trigger Points**

Organizations should create clearly-defined response-planning phases with trigger points for moving from one phase to another. For example, resources such as the Federal Emergency Management Agency (FEMA) can be used as a reference point for disaster and event planning. Similarly, the World Health Organization (WHO), the Department of Health and Human Services (HHS), and the Centers for Disease Control and Prevention (CDC) have developed a planning checklist for large businesses that can be used as a reference point for defining phases and trigger points for pandemic influenza and other event proactive planning activities.

### **Build Escalating Scenarios and Perform Simulation Exercises to Identify Gaps**

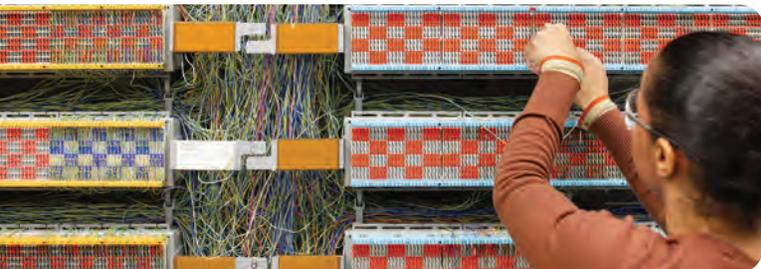
Many organizations are conducting business continuity planning exercises using a range of scenarios to assess the impact of a disaster on their businesses. For example, they may have one scenario designed to simulate a local flood and a second that assesses the impact of a Category F5 Tornado impacting several locations simultaneously. Scenario-based exercises help identify gaps and risks that might not otherwise be obvious. Build scenarios starting with a small event and then move up to one with potential for significant impact.

### **Communication is Crucial**

The ability of an organization to withstand a crisis may ultimately rest on the effectiveness of its communications with employees, customers, suppliers and other key constituents. Senior executives should be ready to deliver the right messages both internally and externally.

### **Network Solutions for Business Continuity Preparedness Require Advanced Planning and Implementation to Effectively Enable Survivability of a Firm's Critical Operations**

Organizations should be prepared to respond to additional demands that might result from their contingency plans, such as increased virtual office work and associated increased demand on their Virtual Private Network (VPN). These concerns might include evaluating their current employee usage of the services, maximum expected increase in corporate infrastructure usage under different scenarios, increases in additional services required and employee preparedness for telecommuting. It is also prudent to provide employees who must work in a virtual office scenario with multiple options (e.g., dial-up, DSL, Wireless Wide Area Network (WWAN)) to access the corporate network.



*AT&T offers a wide array of business continuity services*

## Solutions for Business Continuity Strategies

An increasing number of organizations today are turning to experts for help with business continuity planning. Building on years of experience in managing and maintaining some of the world's largest and most complex networks (including its own), AT&T offers a wide array of business continuity services designed to provide customers with opportunities for continuous operation and availability of their critical business processes, mission-critical applications, data, work centers and networks.

### The AT&T National Security and Emergency Preparedness (NSEP) Portfolio

Government Agencies can accomplish their critical missions under the most challenging natural and man-made circumstances with our continuing commitment to support a robust set of NSEP services.

In the event of crisis or nonstandard events, AT&T has a resilient network with significant capacity that is complimented by robust operations to support NSEP services and NSEP users' needs.

AT&T offers a comprehensive suite of NSEP services, based on the following National Communications System (NCS) Programs:

- Government Emergency Telecommunications Service (GETS)
- Wireless Priority Service (WPS)
- Telecommunications Service Priority (TSP)

Further, AT&T is fully committed to providing robust NSEP services and to working closely with the NCS to develop next generation GETS over Internet Protocol (IP).

### Government Emergency Telecommunications Service

GETS is a calling card service and is available to Federal, State, Local and other Government authorized users.

GETS calls receive priority treatment in the network and have a high probability of completion, making these calls invaluable when a disaster occurs or in situations that may result in network congestion.

AT&T operates a 24x7 NSEP Control Center (CC). The NSEP CC is responsible for coordinating activities between various AT&T centers and workgroups to permit that all functions unique to GETS are performing properly and for monitoring GETS for fraud or abuse.

### Wireless Priority Service

AT&T Mobility supports NSEP critical users' needs for priority wireless call processing that can be fully integrated with wire-line priority treatment in the AT&T portfolio of NSEP services.

WPS is offered on a subscription basis to Federal, State, Local and other Government authorized users.

WPS users can dial the \*272 feature code to queue for priority access to a radio traffic channel and network trunks. In cases where WPS calls terminate on a non-AT&T network; these calls can receive priority handling across the AT&T network.

AT&T Mobility manages all WPS related operations and administration in accordance with NCS guidelines.

### Telecommunications Service Priority

The Federal Communication Commission (FCC) established the TSP in 1988 to help determine what lines should be restored and maintained first in a crisis. Telecommunication lines most necessary for the nation's security and emergency preparedness functions are assigned TSP codes by the federal government and are given priority for restoration and installation. AT&T will give critical circuits with assigned TSP codes top priority for restoration, as it does today.



TSP establishes the legal basis for Service Providers to act, when authorized by the Government, on a priority basis in the provisioning and restoration of services supporting NSEP mission requirements. TSP is applicable to services such as dedicated private lines, access lines, dial-tone lines, high-capacity digital systems, and trunks between another carrier's switching or wireless nodes.



TSP is an FCC mandated program that is managed and administered by the NCS Office of Priority Telecommunications (OPT). AT&T has a designated TSP Point of Contact (POC) to interact with the Office of the TSP Coordinator. AT&T Customer Care Center supports a dedicated TSP Provisioning team that is mobilized when TSP provisioning orders are received.

Restoring service with TSP restoration priority is accomplished using processes built into AT&T Operations Support Systems (OSSs), the AT&T Global Network, and special handling and escalation processes by the AT&T customer care specialists.

## AT&T Business Solutions Portfolio

For organizations looking to update their business continuity plans, AT&T offers a wide array of business continuity services, encompassing disaster planning, risk management, recovery preparedness and communications readiness. In addition, services such as business-impact analysis, risk assessments, enterprise hosting, cloud computing and application services, storage solutions, as well as high availability network solutions and network and IT security solutions can be important components of a company's business continuity plans.

The following pages provide information on some of the business solutions that AT&T can provide to support a customer's business continuity strategies. Each solution provides a synopsis of the Business Continuity/Disaster Recovery challenge and then how AT&T can help address that challenge. It is essential to design and implement these solutions before any type of potential business disruption occurs. Factors such as solution design time, provisioning cycle times and lead times for hardware procurement should all be planned for accordingly. All companies, regardless of size, need to identify their critical business components and effectively manage the risk around them, whether from a hurricane, an earthquake or any other kind of crisis. Unfortunately, many companies are still unprepared.

The AT&T 2013 Business Continuity Study found that:

**13%** of U.S. businesses surveyed do not have business continuity plans in place.

**20%** stated that business continuity planning was not a priority, a 3% increase from 2012.

**26%** of customers have not included wireless network capabilities into their business continuity plans.



## Collaboration – Unified Communications

Natural or man-made disasters can affect the ability of any company to communicate. As businesses implement their continuity plans, they may find they want to consider audio, Web and video conferencing and/or wireless video as part of their overall communications strategy for continued communications and operations as well as emergency response.

### Business Continuity/ Disaster Recovery Challenge

During a disaster scenario, organizations may need to provide their employees and customers with alternatives to face-to-face meetings in the event of travel restrictions or social distancing policies. Additionally, organizations may need to disseminate critical business or operational information quickly and unambiguously to specific employees in real-time for effective disaster response coordination. Crisis management by global enterprises in times of regional, national, or global emergencies is critical to effective and consistent execution.

### How AT&T Can Help

AT&T Unified Communications solutions provide real-time collaboration with others from any location, keeping the lines of communication open in an emergency. Businesses and government department/agencies can incorporate voice, Web, wireless and video into their emergency response communications processes.

#### AT&T Connect®

AT&T Connect® offers real-time project collaboration for the critical operation of a business. With AT&T Connect, employees can communicate and collaborate real-time, viewing and editing documents and sharing applications to support the continuity of business operations. Key decision-makers and colleagues can collaborate on high-profile or emergency projects through an integrated audio, Web and video conferencing solution, to help keep mission-critical business operations functioning. This integrated IP solution provides integrated conferencing and collaboration to help facilitate internal and external communication. And, for additional flexibility, organizations can access AT&T Connect conferencing through their mobile devices.

#### AT&T Telepresence Solution®

For events with broad national or global impact, it is important that organizations, enterprises or government agencies work in a consistent and coordinated way. The necessary resources and executives required to address the situation could be spread across the country or around the world. Having a “virtual” command center enabled by a flexible, high-definition video conferencing infrastructure could be critical to the successful execution of a Business Continuity/Disaster Recovery Plan. Using this highly-secure, reliable solution, individuals can still see eye-to-eye when in-person communication is not possible. Users can establish high definition video conferences as easily as dialing a phone number allowing the required resources to come together and make decisions quickly. Local commanders can collaborate with remote subject matter experts to improve and coordinate incident response. Videoconferencing can also be a valuable medium for Business Continuity/Disaster Recovery planning and training activities among globally dispersed teams. Additionally, AT&T offers multi-point and personal video options, including desktop and mobile capabilities enabling collaboration across corporate boundaries with





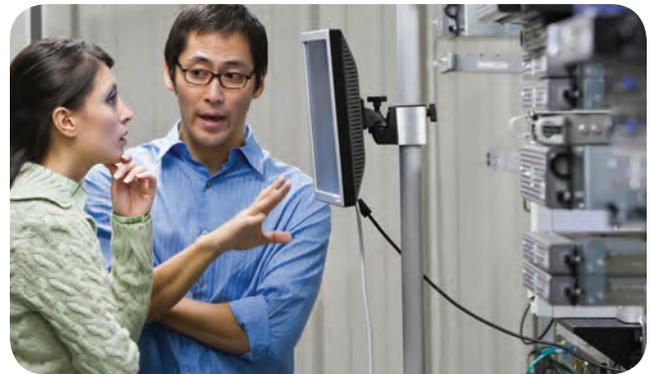
customers, suppliers or strategic partners. This may significantly enhance the response by providing a viable alternative to face-to-face meetings in the event of a pandemic or air travel restrictions. AT&T can provide end-to-end monitoring and management of the solution so you are free to focus on mission critical work. Our cloud-based service option reduces your up-front capital expenditures. Since the AT&T network houses video infrastructure with AT&T-owned endpoints installed at your locations, you just pay a monthly fee and you worry less about technology obsolescence. Or you can choose to have the video infrastructure deployed on your premises.

#### **AT&T Unified Communications Services (UC Services)**

A cloud-based communication and collaboration solution integrates multiple UC and telephony tools such as instant messaging (IM), voice calling, conferencing, and e-mail with presence, behind a single user interface – and makes them available via the AT&T network cloud. Businesses and government agencies are no stranger to disasters. With AT&T UC Services, even before arriving at the scene, emergency response personnel can make decisions about deploying equipment, securing the area and responding to almost any situation. Emergency personnel can use the presence feature to verify who is available and send invitations to join an immediate Web conference utilizing instant messaging. Disaster relief teams can join the Web conference directly from IM, on mobile devices in the field or via desk phone while manning emergency operations centers. Each person can immediately view real-time status reports to plan and prepare recovery efforts. And since UC and telephony applications reside in the cloud, you gain the availability, redundancy and scalability of the AT&T network, helping you respond to disaster management more quickly.

#### **Corporate Crisis Management Service**

For an added layer of security, AT&T offers firms the option of reserving ports on a separate network platform with priority access. This service is designed for critical executive level communications to reach key business decision-makers.



#### **Web Conferencing Services**

AT&T Connect® allows for real-time project collaboration critical to the operation of a business. The AT&T Web conferencing service adds a layer of communication effectiveness by allowing employees real-time viewing of business documents that support the ongoing continuity of business operations. In the event of an emergency, these same Web conferencing ports are designed to continue to function along with their associated audio conferencing ports and can be utilized for disaster-related collaboration. Key decision-makers can collaborate with an integrated audio, Web, video conferencing solution, on high-profile or emergency projects in order to keep mission-critical business operations functioning. And now you can join an AT&T Connect Web or audio conference using your iPhone® or iPad® from virtually anywhere in the world!

## Collaboration – Messaging

When planning for a pandemic event or any man-made or natural disaster, businesses need to consider their ability to maintain electronic communications, such as e-mail and voicemail. During any type of disaster, maintaining communications with employees, customers and shareholders is critical to managing through an event to keep everyone informed, mitigate panic and maintain critical business functions. In order to minimize the impact of an event, enterprises need to develop a plan to maintain their messaging infrastructure.

### Business Continuity/ Disaster Recovery Challenge

In many types of disaster scenarios, businesses may need to relocate their local messaging infrastructure outside the impacted geographic area. If the messaging infrastructure is impacted, then personnel outside the affected area will need to assume the responsibility of monitoring and managing the messaging services. In addition, the security of the messaging service needs to remain intact.

## How AT&T Can Help

AT&T has a portfolio of messaging services to support a business during a disaster scenario. Key services include:

### Hosted Messaging

AT&T provides hosting and application management services for Microsoft® Exchange in a highly available, global infrastructure. The AT&T server environment with state-of-the-art security features applies sophisticated backup systems to help prevent outages. Storage and networks are based on the AT&T utility computing platform, expanding and contracting as demand fluctuates. Hosted from data centers in the U.S., Europe, and Asia, the AT&T hosted e-mail solution brings 'enterprise-class' messaging and collaboration to customers in a scalable, redundant, and cost-effective way.

### Secure E-mail Gateway

AT&T Secure E-mail Gateway (SEG) service is a network-based solution designed to block spam, viruses, and other inbound e-mail malware threats before they reach your network. Just as important as blocking inbound attacks, SEG also gives you the features you need to support outbound e-mail filtering to help protect your company against loss of sensitive information and potential legal liability. SEG can also provide unlimited message archiving. And, in the event of unexpected e-mail downtime or disaster, SEG helps address your business continuity needs. SEG, utilizing technology by McAfee®, integrates its e-mail protection capabilities and global threat intelligence to deliver network-based security solutions.

### Enterprise Paging

Enterprise Paging is a text messaging gateway solution for group notification that works seamlessly with most business notification applications. Enterprise Paging uses the text messaging network, is backed by 24x7 technical support, and enables enhanced response features such as delivery confirmations, longer messages and rapid response prompts. Customers of Enterprise Paging can leverage the dial-up TAP protocol to add redundancy in the event of company e-mail server or Internet failures, and in the event of an on-premise outage the AT&T Business Notification Center Web site can be used as a backup to connect via the Internet from anywhere a connection can be established.



## Remote Access Services/ Mobility

Some studies estimate that if a pandemic becomes a reality, approximately 25-40% of employees may report to work from home due to illness or concerns with infection. For this reason several telework laws were enacted for federal, state and local governments to deploy effective strategies to support availability of personnel resources during an emergency. A Remote Access Plan becomes critical for supporting different types of employees and the applications to which they may need access. This is true for addressing any type of crisis, whether recovering from a natural disaster, such as a hurricane, or dealing with a man-made event such as a public-transit strike. A remote access plan should be implemented in advance, at least in terms of the infrastructure, and include the ability to simply and easily deploy services to end-users on an as-needed basis. When natural disasters and unexpected events occur, it is absolutely vital that businesses respond quickly to maintain their customer service, minimize disruption to their business, and protect their business opportunities.

### Business Continuity/ Disaster Recovery Challenge

When disaster strikes, a plan to provide remote access to critical applications is paramount to staying productive. Employees may scatter, whether moving to higher ground in the event of a hurricane or retreating to their home to avoid a pandemic. A remote access plan should be developed and tested in advance to confirm that the different profiles of users have access to the equipment and software they need locally to access the corporate network remotely and scale their network in a timely manner to accommodate the spike in remote users. In addition, users remotely accessing corporate data from a variety of devices, smartphones and tablets introduce another layer of complexity and concern. The ability to manage mobile devices and provide corporate policies is key.

## How AT&T Can Help

AT&T provides a variety of access and VPN alternatives to meet the needs of multiple profiles. These services are designed to meet the remote access needs of users in both day-to-day business and in an emergency. Key services include:

### Remote VPN Access

AT&T offers a wide array of business continuity services designed to help facilitate your continuous operation including Remote Access to your VPN. This can extend the availability of your critical business processes, applications, data, work centers and networks for your employees. AT&T Network-Based IP Remote Access extends your network virtually anywhere Internet connectivity exists and provides near seamless integration of applications and helps scale your remote access infrastructure to accommodate the increase in remote users. In addition, AT&T Network-Based IP Remote Access integrates mobile technologies and services as an extension to existing enterprise infrastructure.

AT&T also offers SSL (Secure Socket Layer) encryption, allowing end-users access to specific applications via a browser from any location via virtually any device (e.g., Smartphone, PC, laptop, tablet) wherever Internet access is available.

AT&T remote access VPN services also supports SSL and is most appropriate for end-users who don't have access to a company-provided machine and/or only require access to a few Web-enabled applications such as e-mail.

### Access Virtually Any Time, Any Place

AT&T provides a range of access methods, including Wi-Fi, Wired Ethernet, Wireless, Wireless WAN, ISDN, DSL and Dial-Up. The AT&T Global Network customer takes the guesswork out of which access method is available by automatically detecting available access methods and connecting in priority order to the first available method. In addition, network congestion is minimized by pro-active monitoring of the AT&T network and augmenting capacity as required.

### Wireless WAN Connectivity

As part of a disaster preparedness program, AT&T can provide the ability for enterprises to connect to network resources when wireline solutions are not available or are being restored, reducing the costs associated with downtime. WWAN Connectivity from AT&T provides diverse, cost-effective backup for data applications, quick deployment for remote locations, temporary locations for mobile workers and consistent network connectivity. WWAN offers a truly diverse backup solution for mission-critical data when a landline outage occurs. Plus, with a WWAN solution, businesses can utilize their existing security infrastructure and choose from a number of additional security options for network-to-network connectivity.



### Mobile Remote Access

Mobile Remote Access Services support end-to-end connectivity for corporate networks from any location, using a multitude of devices. It gives all users flexible, highly secure access to corporate assets, thereby empowering a genuinely mobile workforce.

The AT&T wireless network provides the coverage, performance, security and convenience enterprise customers need. We can support multiple current and most popular platforms, with options for laptops, embedded devices, integrated devices, smartphones, tablets and the use of mobile hot spots. The AT&T Global Network customer provides a simple user interface, with one-click network access and integrated VPN support. And AT&T VPN solutions offer a wide variety of service levels and network configurations, all supported by our global MPLS-enabled network.

Customers can quickly configure and deploy their devices where and when they need them in areas where there is wireless, Wi-Fi or dial-up access so that users can connect while they are on-the-go or if displaced in the event of a disaster.

### Wireless Push-to-Talk

AT&T enhanced Push-to-Talk customers value the convenience and productivity of being able to set up individual or group calls with the push of a button and instantly communicate a message over the speaker of the recipient's handset. This saves them time as they no longer have to dial, answer and go through greetings, etc., before communicating. For example, in an emergency, a dispatcher can communicate location and instructions over Push-to-Talk faster than it would take most

emergency responders to answer a ringing phone. For repair crew, receiving messages on their handset without having to hold a phone and make a connection is more convenient and allows them to continue working while talking.

### Mobile Device Management (MDM)

When developing a disaster preparedness plan, consideration must be given to users and the disparate devices and operating systems they are using to access the organization's infrastructure, as well as the sensitivity of the corporate data being accessed. AT&T provides mobile device management and security solutions that empower IT managers to set policies, lockdown applications, expand on-device encryption, distribute software, conduct device diagnostics, understand inventory, and more. These comprehensive, scalable device management and security solutions provide IT managers with the capabilities to help protect corporate data on a day-to-day operational basis, as well as in an emergency. AT&T also offers professional services options to assist IT managers with developing a holistic mobile strategy - from consulting, design and development, to deployment and support.

### Commercial Connectivity Services (CCS)

AT&T provides reliable standards-based connectivity between enterprise data center locations and its wireless network. It is through CCS connections that data traffic from wireless devices can be aggregated into one or more AT&T locations and transported to customer data centers. Geo-redundancy within the wireless network from AT&T allows traffic to be shifted to unaffected locations during disaster scenarios. By using CCS as part of a business continuity solution, a customer's network and security infrastructure can be economically utilized to help support continued service during times of emergency. CCS enables the seamless use of wireless applications during disaster recovery scenarios, providing the security features and reliability elements that enterprises require regardless of transport medium.

### Crisis Phone Program/Voluntary Suspend

As an integral part of disaster preparedness planning, AT&T offers customers a Crisis Phone Program to facilitate remote access and mobility. This program provides devices for organizations to use solely in emergencies. Enterprise customers can manage costs by keeping devices on hand in a "voluntary suspend" mode, ready to be activated only when a crisis or emergency arises.

### Cellular Backup

AT&T Remote Mobility Zone (ARMZ) helps you stay connected to critical communications in disaster or emergency situations. AT&T Remote Mobility Zone can provide recoverable GSM voice and data equipment that can be dynamically deployed in a disaster area where mobile coverage has been disrupted. It can also be set up in any area where AT&T cellular coverage is not available, and where AT&T is licensed to provide cellular service.



## Contact Center

When natural disasters and unexpected events occur, it is absolutely vital to minimize risk to employees, customers and the public, reduce disruptions to operations and protect essential assets. With a contact center serving as the front door to the business, maintaining a fully functional contact center can be the lifeline for how enterprises manage through crisis events.

### Business Continuity/ Disaster Recovery Challenge

Businesses need to be protected against all of the vulnerabilities to a contact center that arise when disaster strikes. Networking infrastructure needs to be highly resilient. Call routing needs to be flexible and adaptive in the event of limited resources. Call completion needs to be streamlined and highly automated to minimize agent involvement when people are impacted.

## How AT&T Can Help

AT&T Contact Center Services are ideally suited to help businesses respond quickly to unexpected events. Through an array of advanced capabilities, AT&T Contact Center Services work to support continued customer operations. With highly-skilled Consulting and Integration Solutions resources, AT&T works with businesses throughout the Contact Center life cycle, from pre-planning all the way to day-to-day operations for end-to-end optimization to enable continued and non-disrupted business activities. Our networking services are highly-scalable and resilient. The AT&T portfolio of call routing solutions allows calls to be automatically delivered to the appropriate destination. With an array of automation services, call fulfillment can be accomplished in a highly efficient and effective manner. AT&T uses a “predictive, preventive and proactive” approach through its network service offerings. Based on predicting problems in advance and building intelligent systems and alarms into the network, AT&T initiates rules and procedures to provide network availability for uninterrupted service. AT&T has a number of product and service offerings that specifically address the challenges of business continuity including offers hosted in the AT&T network or premises-based at the customer site and options for fully dedicated or shared environments. Within the toll-free network, AT&T provides a number of solutions that give customers a high degree of flexibility and control when using either traditional delivery methods or IP. Solutions offered within the AT&T toll-free network include:

### AT&T Route It!®

Provides organizations with the ability to manage toll-free calls virtually any way they need. As the need to respond to emergency situations arise, businesses can develop new routing plans and invoke alternate business rules to direct calls to the most available resources at the time.

### Alternate Destination Routing

Provides predefined network routing schemes that automatically redirect calls when a busy or ring-no-answer condition is encountered.

### Next Available Agent Routing and Network Queuing

The combination of these two capabilities provides businesses the ability to queue calls in the AT&T network and route to the customer location when agents become available. This feature extends and enhances the traditional premises-based capabilities and allows callers to wait for an available resource when active agents are unavailable.

### SIP Routing

Utilizing network-based Session Initiation Protocol (SIP) routing capabilities of our IP toll-free offering provides the ability to get customers to the right customer service centers that are available to address their needs the first time.

### AT&T Contact Center Services

Provide a variety of hosted and managed service offerings that enable continued business operations during disruptive situations. These offerings include hosted and managed services that provide voice enabled self-service applications, automated routing, and multi-channel customer contact functionality. Our Contact Center Services also provide quick and immediate response to adverse and unexpected conditions while maintaining customer service. The dynamic distribution of call flows reduces the risk of single-point-of-failure within the call center environment. Businesses can face uncertainty with confidence knowing that their customer-facing operations are backed by world-class network reliability and resiliency.



## Hosting & Application Management

When planning for any type of disaster, public and private sector establishments need to consider a geographically diverse strategy for maintaining availability and access to mission-critical applications. During an event, hardware, software, processes and personnel can be adversely impacted. In order to mitigate this risk, customers need to develop a plan to quickly re-establish their application infrastructure and recover data.

### Business Continuity/ Disaster Recovery Challenge

In a disaster scenario, such as an earthquake or terrorist attack, businesses may need to temporarily fail-over applications and infrastructure to another geography. In the event of a pandemic, local personnel responsible for the applications and infrastructure could be impacted. Firms need to have the ability to turn up application instances and infrastructure, rapidly recover data and vital records, and maintain the availability of their mission-critical applications.

## How AT&T Can Help

AT&T offers an unparalleled breadth of application management and hosting services, as well as associated consulting services, to support application availability and high availability access to critical data and applications. AT&T also offers a complete range of storage services to meet recovery time and recovery point objectives. However, for the purposes of planning for Business Continuity/Disaster Recovery, there are a few services that should be strongly considered:

### Hosting Services

AT&T provides flexible hosting solutions so critical business data and applications remain accessible and high-performing. AT&T has the ability to design, implement, monitor, manage and report on the availability and performance of infrastructure, servers and applications. With diverse capabilities such as collocation, managed hosting, utility computing, and Web hosting, AT&T meets the diverse needs of organizations that need to create a comprehensive recovery strategy. In addition, AT&T provides highly-reliable conditioned space that has direct access to the AT&T Global IP Network for immediate access to your infrastructure and applications.

### Cloud Services

AT&T Cloud Services provide a flexible, cost-effective alternative for delivering IT services – in a way that complements existing systems, staff and processes. Procurement and deployment normally takes time and ties up internal staff. With self-service provisioning, AT&T cloud solutions let organizations sign up online and tap into virtual AT&T infrastructures within minutes. You can launch new services, applications and projects rapidly and expand access, capacity and performance on-demand, while you view and monitor consumption via a web-based portal.

### Application Management

AT&T manages and provides ongoing support for the key software applications companies rely on, specializing in managed enterprise software solutions, eCommerce, and messaging applications. AT&T hosts and manages mission-critical applications, including maintaining replication and disaster recovery for the applications that help businesses operate. AT&T proactively monitors, maintains, provides help desk support, patches, fixes and updates applications – so that in the event of a disaster, customers can concentrate on their core business rather than getting their applications up and running.

### Managed Data Storage Services

AT&T provides primary storage through its Ultravailable® Storage and Storage Plus services for customers who either co-locate or host their IT infrastructure within an AT&T Internet Data Center (IDC). AT&T also offers backup and recovery data storage services through its tape and disk backup and restore capabilities which provides businesses with a highly secure and recoverable environment for their data. A Web interface provides the ability to manage and restore data, as needed. Backup copies can be directed to a specified location or an AT&T Internet Data Center.



### Data Mirroring/Replication

For synchronous mirroring/replication requirements, customers may elect to use AT&T Ultravailable® Network as a high-end, highly-available, fault tolerant, fully redundant, optical networking solution.

### Content Distribution

AT&T Content Delivery Network service replicates and distributes your Web page content, files for download, and live and on-demand video, allowing you to efficiently distribute your content to your customers and significantly improve your Web site's capacity, reliability and performance. So even if your Web server or data center fails, you can count on AT&T to continue to distribute your content hosted in our network of streaming and caching edge servers.

### Digital Signage

AT&T Digital Signage<sup>SM</sup> service is a managed solution that delivers your multimedia message content, interactive wireless Apps, and content creation services. The Service is very flexible in scalability as it leverages your firm's internal unicast or multicast distribution network or Internet connectivity. AT&T's Digital Signage<sup>SM</sup> service includes full life cycle support for design, global deployment, monitoring, maintenance, and break-fix. AT&T even provides support to create the content that will be played on the signs and how to leverage marketing techniques for customer interaction.

### Consulting Services (AT&T Consulting)

As part of their Cloud and Data Center Transformation practice, AT&T Consulting provides a broad portfolio of Business Continuity/Disaster Recovery (BC/DR) services to our customers:

- BC/DR Strategy and Roadmap Engagements
- BC/DR Infrastructure Assessments
- BC/DR Application Assessments
- BC/DR Facility Assessments
- BC/DR Design and Integration Services

AT&T Consulting possesses a team of industry-leading, certified and experienced business continuity experts to facilitate the creation of a Risk Assessment (RA), Business Impact Analysis (BIA) and a Business Continuity Plan (BCP), which also addresses the necessary Disaster Recovery Plan (DRP) for our customer's environment. The DRP provides the necessary Runbooks and Continuity of Operations Processes (COOPs) which are required to successfully execute the DRP and recover mission-critical voice and data services. The COOPs also address the processes you may execute in response to the loss of a critical facility as well as situations where access to the critical facility is blocked or hampered by the disaster event.

One factor that is frequently overlooked in the design and implementation of DR solutions is the integration of the DR environment into the production environment from an operational perspective. These environments must be instrumented and monitored as if they are part of the production environment. As part of our methodology, AT&T Consulting addresses how the DR solution will be integrated into the production environment and also helps ensure that the DR environment is capable of being managed and monitored on the DR site as well as remotely at a Global Operations Center.

The AT&T Consulting team has the flexibility to either create BCPs where none currently exist or to evaluate and modify existing BCPs. They will also confirm that critical enterprise business processes have documented BCPs that are updated and tested on a regular basis. Table Top Plan exercises are designed around specific scenarios to test the viability and capability of the plans, as well as to train key executives on their responsibilities during a disaster. The maintenance of the BCP and regular Table Top test execution are focused on the concept of continuous improvement of the BCP with the objective of achieving continuous business operations.

## AT&T Enterprise Recovery Services

Maintaining a business continuity and recovery program requires expertise and resources that may not be readily available in-house. Enterprise Recovery Services from AT&T offer a full portfolio of subscription-based disaster recovery services for systems and user work locations for businesses to remain prepared for any unplanned event that impacts their company's operations.

### Business Continuity/ Disaster Recovery Challenge

A business depends on constant, uninterrupted access to key applications and critical data. To mitigate the repercussions of a disaster, business continuity and recovery planning is essential to support continued access to business processes. Not only is it important to understand what to recover, whether it is information systems or work group space for employees that have been displaced by a disaster, it is also necessary to know where information systems will be reconstituted or end-users supported.



### How AT&T Can Help

AT&T offers a choice for recovery utilizing center-based, mobile-based or subscriber location-based recovery options for information systems and employees, telecommunications capabilities and IT resources. Key services include:

#### Systems Recovery

AT&T ERS System Recovery solution is ideal for organizations that need to recover distributed systems, Intel®-based platforms, and/or mainframe systems. The solution supports over 30 current and legacy platforms, as well as sophisticated storage environments, and the network to keep it all connected.

#### End-User Recovery

AT&T End-User Recovery Service is ideal for organizations that need alternate workspace for their employees, telecommunications capabilities and IT resources to recover their business processes. End-User Recovery resources includes space, equipment and voice and data communications lines. ERS solution delivery options:

- **Center-Based Recovery Solution**  
This solution offers office space and conditioned IT facilities strategically located throughout North America where the affected employees or COOP personnel can quickly resume business operations in the event of loss or disruption of their location.
- **Mobile-Based Recovery Solution**  
The mobile recovery center solution is designed to save businesses time and to keep their employees closer to home. During a disaster, personnel can focus on assessing the extent of damage caused by the disaster and implementing the contingency plan, while the AT&T-provided Mobile Recovery Center is en route to their specified location. Mobile Recovery Centers are equipped with office space, communications and open systems. The mobile recovery center can be configured with generator power as well as satellite communications.
- **ERS Quick Ship**  
This solution will quick ship pre-specified equipment to the customer specified site at time of disaster.





## Managing Network Security

When planning for any catastrophic event, security should be at the top of the list of services to review. Recovery time and data integrity are paramount to business operations. In order to minimize the impact of an event, alternatives to local or premises-based solutions should be evaluated.

### Business Continuity/ Disaster Recovery Challenge

During a natural or man-made event, businesses may have new temporary locations and significantly increased numbers of employees accessing their network from remote locations. More than ever, businesses will be faced with the need for better secured access to their corporate WANs and LANs. In addition, local security infrastructure and trained personnel could be impacted by the event. Businesses need to have the ability to monitor and manage the security infrastructure during the event.

### How AT&T Can Help

With extensive security experience, and a variety of security resources, AT&T is well equipped to help protect a firm's WAN, LAN and Remote Access services. For the purposes of Business Continuity/Disaster Recovery planning, there are a few capabilities that firms should strongly consider. Key services include:

#### Firewall Protection

The experts at AT&T can help design and implement premises-based and network-based firewalls that will help detect and filter out malicious traffic in the network before it gets to a customer's premises. AT&T can also provide a network-based firewall solution that allows remote workers as well as LAN users to access corporate applications in a highly secure manner. In addition, AT&T offers an Endpoint Security service that is located on the users' desktops or notebooks and provides a means of maintaining the customer's corporate security policy by helping to protect the endpoint as well as the corporate network from various threats and malware. The goal of AT&T is to help organizations maintain their network security during an event.

#### Intrusion Detection/Prevention

AT&T Managed Intrusion Detection/Prevention Service helps protect the networking infrastructure by detecting and responding to unauthorized attempts to access the customer's network. The hardware/software application is connected to the AT&T Security Operations Center where service technicians support round-the-clock surveillance. When a pattern of misuse is detected, the system quickly and automatically responds according to predefined policies to send an alert and take immediate action.

#### DDoS Defense

AT&T Distributed Denial of Service (DDoS) Defense helps detect and mitigate DDoS attacks. DDoS identification and mitigation takes place within the AT&T IP backbone providing increased DDoS protection from malicious traffic before it reaches the customer's network. If a volumetric denial of service attack is detected, the traffic will be routed to a network mitigation scrubbing facility, where the malicious DDoS attack packets are identified and dropped while the traffic determined to be valid is allowed to pass to the customer.

#### Bundled Firewall, E-mail and Web Security

AT&T Secure Network Gateway (SNG) is a cloud-based security service that includes AT&T Network-Based Firewall Service, AT&T Secure E-mail Gateway Service and AT&T Web Security Service. With Secure Network Gateway, customers have tools to help them protect their e-mail from viruses, worms, and spam; manage Internet access with firewalls; block Web-born malware from corporate networks; and receive alerts about possible attacks.



### Mobile Security

AT&T Mobile Security network-based features help maintain compliance with government regulations, enforce corporate security policies, and simplify the management of personal or enterprise-owned devices. AT&T Mobile Security provides anti-virus, anti-malware, and anti-spam capabilities, loss and theft protection, and application monitoring and control. Device management features that quickly and easily protect, manage, and locate lost mobile devices are also included. These solutions also provide consistent application of your corporate security policy when your wireless device connects back to your network. You can validate that your wireline and wireless devices adhere to the same security policies. AT&T provides a range of MDM solutions and professional services that empower IT managers to set policies, lockdown applications, expand on-device encryption, distribute software, conduct device diagnostics, understand inventory, and more. These comprehensive, scalable device management and security solutions provide IT managers with the capabilities to help protect corporate data on a day-to-day operational basis, as well as in an emergency.

### Security Event and Threat Analysis (SETA)

AT&T Security Event and Threat Analysis is a service that utilizes expertise AT&T has developed in security analysis and operations to correlate information from multiple devices and device types, including those on-premises and those embedded in the AT&T network. With the information gathered, AT&T provides notification of prioritized events based on their risk to the organization and the customer's ability to mitigate. Critical event notifications are provided person-to-person and less critical event notifications get delivered via e-mail and through a customized security portal. SETA also provides expert threat analysis; remediation recommendations for critical events; comprehensive reports; log storage; implementation assistance; and policy tuning.

*More information on all of these business solutions can be found at the following URLs:*

[att.com/security](http://att.com/security)

[wireless.att.com/businesscenter](http://wireless.att.com/businesscenter)





## AT&T Customer Support

### Communications

During a disaster scenario, AT&T communicates with its customers through a variety of vehicles including, AT&T BusinessDirect® | AT&T Premier, AT&T Vital Connections, broadcast e-mails, individual e-mails or phone calls from AT&T representatives, and Interactive Voice Responses. Methods of communication vary based on the severity and proliferation of an event. AT&T communicates internally when an event occurs and then communicates with its customers as appropriate information becomes available.

In addition, customers can obtain updates directly from AT&T in a self-service fashion using att.com as the front door to any updates regarding events. As a standard feature on att.com, there is information about business continuity, both about how AT&T is prepared and ready through its NDR exercises, and about services that are available to customers for their preparedness requirements.

### AT&T BusinessDirect® | AT&T Premier

AT&T BusinessDirect® | AT&T Premier is a suite of powerful online tools that can be particularly helpful for both communications and self-servicing for AT&T customers during times of disaster. These tools can be used to reroute network traffic, test circuits, report and track service problems, place emergency orders, and perform other customer service related tasks. It is important to be prepared to be able to use the tools when they are needed. Therefore, customers should confirm they have access to and are familiar with the portal before an unexpected incident occurs. Customers can obtain access to the portal through their AT&T account representatives.

During a disaster, AT&T will post critical information and messages for customers on the AT&T BusinessDirect® | AT&T Premier for easy access. There are several ways in which businesses can use AT&T BusinessDirect® | AT&T Premier, as depicted in the following table.



## AT&T BusinessDirect® | AT&T Premier online tools may be used within business continuity planning and recovery efforts

AT&T BusinessDirect® Capabilities	Tool Name	Applicable Service(s)
<b>Call Routing</b> <ul style="list-style-type: none"> <li>• Make changes to existing routing plans in real-time. Shift toll-free traffic to other contact centers to maintain customer service</li> <li>• Establish new routing plans. Add new terminations in near real-time and begin routing terminations almost immediately</li> </ul>	<ul style="list-style-type: none"> <li>• Control Toll-Free Routing</li> <li>• Route It!®</li> </ul>	<ul style="list-style-type: none"> <li>• AT&amp;T Toll-Free Service</li> </ul>
<b>eMaintenance</b> <ul style="list-style-type: none"> <li>• Check networks for outages in real-time</li> <li>• Test circuits to see if they are performing properly</li> <li>• Submit trouble tickets to initiate repairs quickly</li> <li>• Invoke Service Assurance Plans – toll-free call routing plans that are prepared in advance</li> </ul>	<ul style="list-style-type: none"> <li>• AT&amp;T BusinessDirect Map</li> <li>• AT&amp;T BusinessDirect eMaintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Most Domestic and International Data Services</li> <li>• Outbound Switched Voice Service (EM only)</li> <li>• Domestic and International Toll-Free Readyline Service</li> <li>• Dedicated Voice Service</li> <li>• Domestic and International Toll-Free MEGACOM Service</li> <li>• Most AT&amp;T Managed Services</li> </ul>
<b>eOrdering</b> <ul style="list-style-type: none"> <li>• Move, add, change and disconnect services on AT&amp;T network</li> <li>• Receive up-to-date network inventory</li> <li>• Get real-time status on orders</li> </ul>	<ul style="list-style-type: none"> <li>• AT&amp;T BusinessDirect eOrder</li> <li>• AT&amp;T BusinessDirect Map</li> </ul>	<ul style="list-style-type: none"> <li>• Most Domestic Voice and Data Services</li> <li>• AT&amp;T Toll-Free Service</li> <li>• IP-Enabled Frame Relay and ATM Services</li> </ul>
<b>Performance Reporting and Monitoring</b> <ul style="list-style-type: none"> <li>• Originating and terminating details on calls reaching the customer's premises</li> <li>• Summary information on call attempts to the customer's toll-free number</li> <li>• Real-time information on AT&amp;T High-Speed Packet Service ports and PVC usage</li> <li>• Monitor data circuits: for T1 circuits, configuration, performance and fault monitoring; for T3 circuits, configuration and fault monitoring</li> <li>• Real-time fault notification on trunk and carrier outages</li> <li>• Site availability for routers; site-to-site latency by Class of Service; near real-time usage for site latency and packet delivery by COS</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze and Monitor Call Data</li> <li>• Analyze Toll-Free Call Attempts – Real-Time</li> <li>• AT&amp;T BusinessDirect Map</li> <li>• Customer Network Management Service/Web Reports Interface</li> <li>• iGEMS T1-T3 Monitor</li> <li>• IP Network Usage Reports Monitor and Control Voice Performance</li> </ul>	<ul style="list-style-type: none"> <li>• Frame Relay Service</li> <li>• ATM Service</li> <li>• Private Line Service</li> <li>• IP-Enabled Frame Relay and ATM Services</li> <li>• Domestic and International Toll-Free Voice Service</li> <li>• Dedicated inbound and outbound domestic long distance voice trunk groups</li> <li>• AT&amp;T Enhanced VPN Service</li> <li>• AT&amp;T Advanced VPN Service</li> </ul>

## How online tools to manage your wireless environment may be used within business continuity planning and recovery efforts

Premier Enterprise Portal	Tool Name	Applicable Service(s)
<ul style="list-style-type: none"> <li>Purchase, move, add and change wireless services, features and devices during and after a disaster based on customer's contract and device preferences</li> <li>End-user self service for online wireless account management, bill payment and care any time</li> </ul>	<ul style="list-style-type: none"> <li>Premier Resource Center, Premier Online Care</li> <li>Individual, Corporate and Telecom Manager Online Stores</li> </ul>	<ul style="list-style-type: none"> <li>Most Enterprise Wireless Voice and Data Programs and Services</li> </ul>
<b>Online Activation, SIM Inventory Management and Simplified Billing</b> <ul style="list-style-type: none"> <li>Order inactive data Subscriber Identity Module (SIM) cards online before disaster strikes</li> <li>Online activation of the SIMs needed during an emergency</li> <li>Online Billing – view a simplified bill</li> <li>Online ticket entry, status and reporting</li> </ul>	<ul style="list-style-type: none"> <li>Enterprise On-Demand Service</li> </ul>	For large wireless data deployments such as: <ul style="list-style-type: none"> <li>Field Service; ruggedized devices</li> <li>Telemetry; meter reading devices</li> <li>Dedicated Voice Service</li> <li>Point of Sale; merchant devices</li> <li>Mobile Professionals; LaptopConnect cards</li> </ul>
<b>Service Coverage Maps</b> <ul style="list-style-type: none"> <li>Provides interactive wireless network coverage map detail for wireless voice, data and partner networks</li> <li>Zoom to the street level to help establish service expectations if company resources are displaced</li> </ul>	<ul style="list-style-type: none"> <li>Coverage Viewer</li> </ul>	<ul style="list-style-type: none"> <li>AT&amp;T-owned GSM, GPRS and EDGE wireless network service</li> <li>3G/4G HSPA+/4G LTE wireless network</li> <li>Unaffiliated carriers, partner coverage</li> </ul>

Wireless service not available in all areas. Due to transmission, system and other limitations, wireless service may not be accessible at all times. Offer(s) subject to change. Additional restrictions apply. See <https://www.wireless.att.com/businesscenter/solutions/> for more information.

## Additional Information

It's important to identify accurate sources of information for preparedness efforts.

The AT&T Web site, Vital Connections, provides disaster and business continuity resources providing guidance and assistance in addressing your needs. Additional information on Business Continuity planning can also be found on AT&T Networking Exchange, the following government and agency Web sites and by contacting your AT&T Representative.

### AT&T Sites:

- AT&T Vital Connections  
[att.com/vitalconnections](http://att.com/vitalconnections)
- AT&T Networking Exchange  
[att.com/networkingexchange/businesscontinuity](http://att.com/networkingexchange/businesscontinuity)

### Non-AT&T Sites:

- Federal Emergency Management Agency (FEMA) - Ready  
[ready.gov/](http://ready.gov/)
- Federal Emergency Management Agency (FEMA)  
[fema.gov/](http://fema.gov/)
- Federal Emergency Management Agency (FEMA) PS Prep  
[fema.gov/privatesector/preparedness/](http://fema.gov/privatesector/preparedness/)
- National Security Telecommunications Advisory Committee (NSTAC)  
[dhs.gov/nstac](http://dhs.gov/nstac)
- NCS - TSP Program Office  
[tsp.ncs.gov/](http://tsp.ncs.gov/)
- NOAA North Atlantic Hurricane Outlook  
[noaa.gov](http://noaa.gov)
- U.S. Health and Human Services  
[pandemicflu.gov](http://pandemicflu.gov)
- World Health Organization  
[who.int](http://who.int)
- Centers for Disease Control and Prevention (CDC)  
[cdc.gov/](http://cdc.gov/)



## Attachment A – Sample Contract Terms and Conditions

### CONTRACT FOR SERVICES

This Contract (“Contract”), entered into by and between the Alabama 911 Board (the “Board”) and \_\_\_\_\_ (the “Contractor”), is executed pursuant to the terms and conditions set forth herein. In consideration of those mutual undertakings and covenants, the parties agree as follows:

**1. Duties of Contractor.** The Contractor shall provide the following services relative to this Contract:

[Scope of services to be inserted here and as Appendices/Exhibits upon award of Contract]

**2. Consideration.** The Contractor shall be compensated for services performed under this Contract as follows:

[Fee information to be inserted upon award of Contract]

**3. Term.** This Contract shall be effective for a period of [\_\_TBD\_\_]. It shall commence on [\_\_TBD\_\_] and shall remain in effect through [\_\_TBD\_\_].

**4. Access to Records.** The Contractor and its subcontractors, if any, shall maintain all books, documents, papers, accounting records, and other evidence pertaining to all costs incurred and payments made under this Contract. They shall make such materials available at their respective offices at all reasonable times during this Contract, and for three (3) years from the date of final payment under this Contract, for inspection by the Board or its authorized designees. Copies shall be furnished at no cost to the Board if requested.

**AT&T Response:**

**Audit Rights.**

(a) Subject to AT&T’s reasonable security requirements and not more than once every twelve (12) months, Customer may, at its own expense, review AT&T’s relevant billing records for a period not to exceed the preceding 12 months, for the purpose of assessing the accuracy of AT&T’s invoices to Customer. Customer may employ such assistance, as it deems desirable to conduct such reviews, but may not employ the assistance of any entity that derives a substantial portion of its revenues from the provision of services that are substantially similar to the Services provided hereunder or any person who has previously made prohibited use of AT&T’s Confidential Information. Customer shall cause any person retained for this purpose to execute a non-disclosure agreement imposing substantially the same obligations of confidentiality as are set forth elsewhere in this Agreement. Such reviews shall take place at a time and place agreed upon by the parties. Customer’s normal

internal invoice reconciliation procedures shall not be considered a review of AT&T's relevant billing records for purposes of this Section.

- (b) AT&T shall promptly correct any billing error that is revealed in a billing review, including refunding any overpayment by Customer in the form of a credit as soon as reasonably practicable under the circumstances.
- (c) AT&T shall cooperate in any Customer billing review, providing AT&T billing records as reasonably necessary to verify the accuracy of AT&T's invoices. AT&T may redact from the billing records provided to Customer any information that reveals the identity or non-public information of other AT&T customers or other AT&T Confidential Information that is not relevant to the purposes of the review.

**5. Assignment; Successors.** The Contractor binds its successors and assignees to all the terms and conditions of this Contract. The Contractor shall not assign or subcontract the whole or any part of this Contract without the Board's prior written consent. The Contractor may assign its right to receive payments to such third parties as the Contractor may desire without the prior written consent of the Board, provided that the Contractor gives written notice (including evidence of such assignment) to the Board thirty (30) days in advance of any payment so assigned. The assignment shall cover all unpaid amounts under this Contract and shall not be made to more than one party.

**AT&T Response:**

AT&T agrees to ensure that any subcontractor, which AT&T utilizes to provide performance under any definitive agreement that may be entered into between the parties in connection with the services proposed by AT&T in response to this RFP, agrees in writing to substantially the same terms and conditions that apply through this RFP to AT&T. However due to confidentiality requirements of our agreements with our subcontractors, AT&T may not be able to provide Customer with a copy of a particular subcontract.

**6. Assignment of Antitrust Claims.** As part of the consideration for the award of this Contract, the Contractor assigns to the Board all right, title and interest in and to any claims the Contractor now has, or may acquire, under state or federal antitrust laws relating to the products or services which are the subject of this Contract.

**AT&T Response:**

AT&T counter proposes and will agree to the following language, intended to accomplish the same thing with greater clarity: "Contractor hereby assigns to the Customer any and all antitrust claims for overcharges to the extent associated with the volume of products and services provided to Customer under any contract resulting from this RFP, when such claims arise under the antitrust laws of the United States, 15 U.S.C. Section 1, et seq. (1973), as amended, and the antitrust laws of the State of Alabama."

**7. Audits.** The Contractor acknowledges that it may be required to submit to an audit of funds paid through this Contract. Any such audit shall be conducted in accordance with Chapter 2A, Title 40 Ala. Code, 1975, and audit guidelines specified by the Board.

The Board considers the Contractor to be a “vendor” for purposes of this Contract. However, if required by applicable provisions of the Office of Management and Budget Circular A-133 (Audits of States, Local Governments, and Non-Profit Organizations), following the expiration of this Contract the Contractor shall arrange for a financial and compliance audit of funds provided by the Board pursuant to this Contract. Such audit is to be conducted by an independent public or certified public accountant and performed in accordance with industry best practice and applicable provisions of the Office of Management and Budget Circulars A-133 (Audits of States, Local Governments, and Non-Profit Organizations). The Contractor is responsible for ensuring that the audit and any management letters are completed and forwarded to the Board in accordance with the terms of this Contract. Audits conducted pursuant to this paragraph must be submitted no later than nine (9) months following the close of the Contractor’s fiscal year. The Contractor agrees to provide the Board an original of all financial and compliance audits. The audit shall be an audit of the actual entity, or distinct portion thereof that is the Contractor, and not of a parent, member, or Subsidiary Corporation of the Contractor, except to the extent such an expanded audit may be determined by the Board to be in the best interests of the Board. The audit shall include a statement from the Auditor that the Auditor has reviewed this Contract and that the Contractor is not out of compliance with the financial aspects of this Contract.

**AT&T Response:**

AT&T proposes the following language:

**Audit Rights.**

- (a) Subject to AT&T’s reasonable security requirements and not more than once every twelve (12) months, Customer may, at its own expense, review AT&T’s relevant billing records for a period not to exceed the preceding 12 months, for the purpose of assessing the accuracy of AT&T’s invoices to Customer. Customer may employ such assistance, as it deems desirable to conduct such reviews, but may not employ the assistance of any entity that derives a substantial portion of its revenues from the provision of services that are substantially similar to the Services provided hereunder or any person who has previously made prohibited use of AT&T’s Confidential Information. Customer shall cause any person retained for this purpose to execute a non-disclosure agreement imposing substantially the same obligations of confidentiality as are set forth elsewhere in this Agreement. Such reviews shall take place at a time and place agreed upon by the parties. Customer’s normal internal invoice reconciliation procedures shall not be considered a review of AT&T’s relevant billing records for purposes of this Section.
- (b) AT&T shall promptly correct any billing error that is revealed in a billing review, including refunding any overpayment by Customer in the form of a credit as soon as reasonably practicable under the circumstances.
- (c) AT&T shall cooperate in any Customer billing review, providing AT&T billing records as reasonably necessary to verify the accuracy of AT&T’s invoices. AT&T may redact from the billing records provided to Customer any information that reveals the identity or non-public information of other AT&T customers or other AT&T Confidential Information that is not relevant to the purposes of the review.

**8. Authority to Bind Contractor.** The signatory for the Contractor represents that he/she has been duly authorized to execute this Contract on behalf of the Contractor and has obtained all necessary or applicable approvals to make this Contract fully binding upon the Contractor when his/her signature is affixed, and accepted by the Board.

**9. Changes in Work.** The Contractor shall not commence any additional work or change the scope of the work until authorized in writing by the Board. The Contractor shall make no claim for additional compensation in the absence of a prior written approval and amendment executed by all signatories hereto. This Contract may only be amended, supplemented or modified by a written document executed in the same manner as this Contract.

**10. Compliance with Laws.**

- A. The Contractor shall comply with all applicable federal, state, and local laws, rules, regulations, and ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment or modification of any applicable state or federal statute or the promulgation of rules or regulations thereunder after execution of this Contract shall be reviewed by the Board and the Contractor to determine whether the provisions of this Contract require formal modification.
- B. The Contractor and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the Board as set forth in The Alabama Ethics Law Sections 36-25-1 et seq. Ala. Code, 1975, as amended and the regulations promulgated thereunder. If the Contractor is not familiar with these ethical requirements, the Contractor should refer any questions to the Alabama State Ethics Commission. If the Contractor or its agents violate any applicable ethical standards, the Board may, in its sole discretion, terminate this Contract immediately upon notice to the Contractor. In addition, the Contractor may be subject to penalties under The Alabama Ethics Law at Section 36-25-27 Ala. Code, 1975, as amended and under any other applicable laws.
- C. The Contractor certifies by entering into this Contract that neither it nor its principal(s) is presently in arrears in payment of taxes, permit fees or other statutory, regulatory or judicially required payments to the Board or the State of Alabama. The Contractor agrees that any payments currently due to the Board or the State of Alabama may be withheld from payments due to the Contractor. Additionally, further work or payments may be withheld, delayed, or denied and/or this Contract suspended until the Contractor is current in its payments and has submitted proof of such payment to the Board.
- D. The Contractor warrants that it has no current, pending or outstanding criminal, civil, or enforcement actions initiated by the Board or the State of Alabama and agrees that it will immediately notify the Board of any such actions. During the term of such actions, the Contractor agrees that the Board may delay, withhold, or deny work under any supplement, amendment, change order or other contractual device issued pursuant to this Contract.
- E. If a valid dispute exists as to the Contractor's liability or guilt in any action initiated by the Board or the State of Alabama or any affiliated agencies, and the Board decides to delay, withhold, or deny work to the Contractor, the Contractor may request that it be allowed to continue, or receive work, without delay. The Contractor must submit, in writing, a request for review to the Board.

A determination by the Board shall be binding on the parties. Any payments that the Board may delay, withhold, deny, or apply under this section shall not be subject to penalty or interest.

F. The Contractor warrants that the Contractor and its subcontractors, if any, shall obtain and maintain all required permits, licenses, registrations, and approvals, and shall comply with all health, safety, and environmental statutes, rules, or regulations in the performance of work activities for the Board. Failure to do so may be deemed a material breach of this Contract and grounds for immediate termination and denial of further work with the Board.

G. The Contractor affirms that, Contractor is properly registered and owes no outstanding reports to the Alabama Secretary of State.

**11. Condition of Payment.** All services provided by the Contractor under this Contract must be performed to the Board's reasonable satisfaction and in accordance with all applicable federal, state, local laws, ordinances, rules and regulations. The Board shall not be required to pay for work found to be unsatisfactory, inconsistent with this Contract, or performed in violation of and federal, state or local statute, ordinance, rule or regulation.

**AT&T Response:**

AT&T does not agree to a subjective satisfaction standard for acceptance, but instead proposes that the parties develop mutually agreeable objective acceptance test criteria under which the services would be accepted.

**12. Confidentiality of Board Information.** The Contractor understands and agrees that data, materials, and information disclosed to the Contractor may contain confidential and protected information. The Contractor covenants that data, material, and information gathered, based upon or disclosed to the Contractor for the purpose of this Contract will not be disclosed to or discussed with third parties without the prior written consent of the Board.

The parties acknowledge that the services to be performed by Contractor for the Board under this Contract may require or allow access to data, materials, and information containing Personally Identifiable Information (defined as any information that identifies or can be used to identify, contact or locate the person to whom such information pertains or from which identification or contact information on an individual can be derived). If any Social Security number(s) is/are disclosed by Contractor, Contractor agrees to pay the cost of the notice of disclosure of a breach of the security of the system in addition to any other claims and expenses for which it is liable under the terms of this contract.

**AT&T Response:**

AT&T Takes exception to this Section 12 and proposes the following:

**12. CONFIDENTIAL INFORMATION**

**12.1 Confidential Information.** Confidential Information means: (a) information the parties or their Affiliates share with each other in connection with this Agreement or in anticipation of providing Services under this Agreement (including pricing or other proposals), but only to the

extent identified as Confidential Information in writing; and (b) except as may be required by applicable law or regulation, the terms of this Agreement.

**12.2 Obligations.** A disclosing party's Confidential Information will, for a period of 3 years following its disclosure to the other party (except in the case of software, for which the period is indefinite): (a) not be disclosed, except to the receiving party's employees, agents and contractors having a need-to-know (but only if such agents and contractors are not direct competitors of the other party and agree in writing to use and disclosure restrictions as restrictive as this Section 12) or to the extent authorized to be revealed by law, governmental authority or legal process (but only if such disclosure is limited to that which is so authorized and prompt notice is provided to the disclosing party to the extent practicable and not prohibited by law, governmental authority or legal process); (b) be held in confidence; and (c) be used only for purposes of using the Services, evaluating proposals for new services or performing this Agreement (including in the case of AT&T to detect fraud, to check quality and to operate, maintain and enhance the network and Services).

**12.3 Exceptions.** The restrictions in this Section 12 will not apply to any information that: (a) is independently developed by the receiving party without use of the disclosing party's Confidential Information; (b) is lawfully received by the receiving party free of any obligation to keep it confidential; or (c) becomes generally available to the public other than by breach of this Agreement.

**12.4 Privacy.** Each party is responsible for complying with the privacy laws applicable to its business. AT&T shall require its personnel, agents and contractors around the world who process Customer Personal Data to protect Customer Personal Data in accordance with the data protection laws and regulations applicable to AT&T's business. If Customer does not want AT&T to comprehend Customer data to which it may have access in performing Services, Customer must encrypt such data so that it will be unintelligible. Customer is responsible for obtaining consent from and giving notice to its Users, employees and agents regarding Customer's and AT&T's collection and use of the User, employee or agent information in connection with a Service. Customer will only make accessible or provide Customer Personal Data to AT&T when it has the legal authority to do so. Unless otherwise directed by Customer in writing, if AT&T designates a dedicated account representative as Customer's primary contact with AT&T, Customer authorizes that representative to discuss and disclose Customer's customer proprietary network information to any employee or agent of Customer without a need for further authentication or authorization.

**13. Continuity of Services.**

- A. The Contractor recognizes that the service(s) to be performed under this Contract are vital to the Board and the State of Alabama and must be continued without interruption and that, upon Contract expiration or termination, a successor, either the Board or another contractor, may continue them. The Contractor agrees to:
1. Furnish phase-in training; and
  2. Exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.

- B. The Contractor shall, upon the Board's written notice:
1. Continue to provide services during the transition of services period for up to six (6) months after this Contract is terminated or expires; and
  2. Negotiate in good faith a plan with the Board and any successor to determine the nature and extent of phase-in, phase-out services necessary to transition operation. The plan shall specify a training program and a date for transferring responsibilities for each of the service areas provided, and shall be subject to the Board's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this Contract are maintained at the required level of proficiency.
- C. The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this Contract. The Contractor shall also disclose necessary personnel records and allow the successor to conduct on-site interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.

**AT&T Response:**

AT&T takes exception to this Section 13, as worded. AT&T agrees to furnish phase-in training and to exercise commercially reasonable best efforts and cooperation to effect an orderly and efficient transition to a successor. AT&T must retain the right to manage, train, and control its own employee resources. AT&T does not agree to disclose personnel records of AT&T employees and does not agree to release AT&T employees except as may be mutually agreed upon between the parties.

- D. The Contractor shall be reimbursed for reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations). Any costs eligible for reimbursement shall not exceed the monthly recurring cost being paid for the services provided under this contract at the time of contract expiration and as approved by the Board.

**14. Debarment and Suspension.**

A. The Contractor certifies by entering into this Contract that neither it nor its principals nor any of its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from entering into this Contract by any federal agency or by any department, agency or political subdivision of the State of Alabama. The term "principal" for purposes of this Contract means an officer, director, owner, partner, key employee or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor.

B. The Contractor certifies that it has verified the state and federal suspension and debarment status for all subcontractors receiving funds under this Contract and shall be solely responsible for any recoupment, penalties or costs that might arise from use of a

suspended or debarred subcontractor. The Contractor shall immediately notify the Board if any subcontractor becomes debarred or suspended, and shall, at the Board's request, take all steps required by the Board to terminate its contractual relationship with the subcontractor for work to be performed under this Contract.

**15. Default by Board.** If the Board, ninety (90) days after receipt of written notice, fails to correct or cure any material breach of this Contract, the Contractor may cancel and terminate this Contract and institute measures to collect monies due up to and including the date of termination.

**AT&T Response:**

AT&T takes exception to this Section 15 and has proposed our Termination terms at Section 43. We look forward to negotiating a mutually-agreeable terms with the State.

**16. Disputes.**

**A. SHOULD ANY DISPUTES ARISE WITH RESPECT TO THIS CONTRACT, THE CONTRACTOR AND THE BOARD AGREE TO ACT IMMEDIATELY TO RESOLVE SUCH DISPUTES. TIME IS OF THE ESSENCE IN THE RESOLUTION OF DISPUTES.**

B. The Contractor agrees that, the existence of a dispute notwithstanding, it will continue without delay to carry out all of its responsibilities under this Contract that are not affected by the dispute. Should the Contractor fail to continue to perform its responsibilities regarding all non-disputed work, without delay, any additional costs incurred by the Board or the Contractor as a result of such failure to proceed shall be borne by the Contractor, and the Contractor shall make no claim against the Board for such costs.

C. If a party to the Contract is not satisfied with the progress toward resolving a dispute, the party must notify in writing the other party of this dissatisfaction. Upon written notice, the parties have ten (10) working days, unless the parties mutually agree to extend this period, following the notification to resolve the dispute. If the dispute is not resolved within ten (10) working days, the parties shall submit the dispute, in compliance with the recommendations to the Attorney General, when considering settlement of such disputes, to utilize appropriate forms of alternate dispute resolution, including, but not limited to, mediation by or through the Attorney General's Office of Administrative Hearing or where appropriate, private mediators. If a party is not satisfied with the results of mediation, the dissatisfied party may submit the dispute to the Circuit Court of Montgomery County, Alabama.

D. The Board may withhold payments on disputed items pending resolution of the dispute. The unintentional nonpayment by the Board to the Contractor of one or more invoices not in dispute in accordance with the terms of this Contract will not be cause for the Contractor to terminate this Contract.

E. It is agreed that the terms and commitments contained herein shall not be constituted a debt of the State of Alabama in violation of Article XI, Section 213, of the Constitution of Alabama, 1901, as amended by Amendment No. 26. It is further agreed that if any provision of this contract shall contravene any statute or constitutional provision or amendment, either now in effect or which may, during the course of this contract, be enacted, then that conflicting provision of the contract shall be null and void.

**AT&T Response:**

AT&T takes exception to Section 16 D and proposes the following:

- D. Customer will not be required to pay charges for Services initially invoiced more than 6 months after close of the billing period in which the charges were incurred, except for calls assisted by an automated or live operator. If Customer disputes a charge, Customer will provide notice to AT&T specifically identifying the charge and the reason it is disputed within 6 months after the date of the invoice in which the disputed charge initially appears, or Customer waives the right to dispute the charge. The portion of charges in dispute may be withheld and will not be considered overdue until AT&T completes its investigation of the dispute, but Customer may incur late payment fees as otherwise set out herein. Following AT&T's notice of the results of its investigation to Customer, payment of all properly due charges and properly accrued late payment fees must be made within ten (10) business days. AT&T will reverse any late payment fees that were invoiced in error.

**17. Drug-Free Workplace Certification.** The Contractor hereby covenants and agrees to make a good faith effort to provide and maintain a drug-free workplace. The Contractor will give written notice to the Board within ten (10) days after receiving actual notice that the Contractor, or an employee of the Contractor in the State of Alabama, has been convicted of a criminal drug violation occurring in the workplace. False certification or violation of this certification may result in sanctions including, but not limited to, suspension of contract payments, termination of this Contract and/or debarment of contracting opportunities with the Board for up to three (3) years.

In addition to the provisions of the above paragraph, if the total amount set forth in this Contract is in excess of \$25,000.00, the Contractor certifies and agrees that it will provide a drug-free workplace by:

- A. Publishing and providing to all of its employees a statement notifying them that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
- B. Establishing a drug-free awareness program to inform its employees of (1) the dangers of drug abuse in the workplace; (2) the Contractor's policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; and (4) the penalties that may be imposed upon an employee for drug abuse violations occurring in the workplace;
- C. Notifying all employees in the statement required by subparagraph (A) above that as a condition of continued employment, the employee will (1) abide by the terms of the statement; and (2) notify the Contractor of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;
- D. Notifying the Board in writing within ten (10) days after receiving notice from an employee under subdivision (C)(2) above, or otherwise receiving actual notice of such conviction;

- E. Within thirty (30) days after receiving notice under subdivision (C)(2) above of a conviction, imposing the following sanctions or remedial measures on any employee who is convicted of drug abuse violations occurring in the workplace: (1) taking appropriate personnel action against the employee, up to and including termination; or (2) requiring such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state or local health, law enforcement, or other appropriate agency; and
- F. Making a good faith effort to maintain a drug-free workplace through the implementation of subparagraphs (A) through (E) above

**18. Employment Eligibility Verification.** As required by Alabama state law, the Contractor swears or affirms under the penalties of perjury that the Contractor does not knowingly employ an unauthorized alien. The Contractor further agrees that:

- A. The Contractor shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC §22-5-1.7-3. The Contractor is not required to participate should the E-Verify program cease to exist. Additionally, the Contractor is not required to participate if the Contractor is self-employed and does not employ any employees.
- B. The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien.
- C. The Contractor shall require his/her/its subcontractors, who perform work under this Contract, to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

The Board may terminate for default if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified by the Board.

**19. Employment Option.** If the Board determines that it would be in the Board's best interest to hire an employee of the Contractor, the Contractor will release the selected employee from any non-competition agreements that may be in effect. This release will be at no cost to the Board or the employee

**AT&T Response:**

AT&T takes exception to this provision.

**20. Force Majeure.** In the event that either party is unable to perform any of its obligations under this Contract or to enjoy any of its benefits because of natural disaster or decrees of governmental bodies not the fault of the affected party (hereinafter referred to as a "Force Majeure Event"), the party who has been so affected shall immediately give notice to the other party and shall do everything possible to resume performance. Upon receipt of such notice, all obligations under this Contract shall be immediately suspended. If the period of nonperformance exceeds thirty (30) days from the receipt of

notice of the Force Majeure Event, the party whose ability to perform has not been so affected may, by giving written notice, terminate this Contract.

**AT&T Response:**

AT&T requests that the language be modified to make clear that "payments of amounts due" is excluded from obligations that may be excused by force majeure, as well as to include labor strikes as a specific example for force majeure events.

**21. Funding Cancellation.** When the Board makes a written determination that funds are not authorized by statute or otherwise available to support continuation of performance of this Contract, this Contract shall be canceled. A determination by the Board that funds are not authorized or otherwise available to support continuation of performance shall be final and conclusive.

**22. Governing Law.** This Contract shall be governed, construed, and enforced in accordance with the laws of the State of Alabama, without regard to its conflict of laws rules. Suit, if any, must be brought in the Circuit Court of Montgomery County, Alabama.

**23. Indemnification.** The Contractor agrees to indemnify, defend, and hold harmless the Board, its agents, officials, and employees from all claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any, in the performance of this Contract. The Board shall not provide such indemnification to the Contractor.

**AT&T Response:**

As per the State's response to AT&T's Question #14, AT&T requests negotiation of this Indemnification clause to identify with more specificity the kinds of injury that would be subject to the clause as well as to address applicable standards of conduct." As the language is currently worded, there is no standard of care criteria that would trigger the obligation; nor is there a narrowing of the kinds of hard that may be indemnified against to tangible kinds of injury.

**24. Independent Contractor; Workers' Compensation Insurance.** The Contractor is performing as an independent entity under this Contract. No part of this Contract shall be construed to represent the creation of an employment, agency, partnership or joint venture agreement between the parties. Neither party will assume liability for any injury (including death) to any persons, or damage to any property, arising out of the acts or omissions of the agents, employees or subcontractors of the other party. The Contractor shall provide all necessary unemployment and workers' compensation insurance for the Contractor's employees, and shall provide the Board with a Certificate of Insurance evidencing such coverage prior to starting work under this Contract.

25. Insurance.

AT&T Response:

Please see below AT&T's responses to the State's proposed Insurance provisions as we can accommodate them.

The Contractor shall secure and keep in force during the term of this Contract the following insurance coverage, covering the Contractor for claims of bodily injury or property damage, including loss of use that arise out of or result from Contractor's negligent acts under this Contract:

Deleted: any nature which may in any manner

Deleted: performance

A. The Contractor and their subcontractors ( if any) shall secure and keep in force during the term of this Contract the following insurance coverages (if applicable) covering the Contractor for any and all claims of any nature which may in any manner arise out of or result from Contractor's performance under this Contract:

1. Commercial general liability, including contractual coverage, and products or completed operations coverage (if applicable), with liability limits of \$5,000,000 per occurrence and in the aggregate. The Board is to be included as an additional insured on a primary, non-contributory basis under the required coverage.

Deleted: minimum

Deleted: not less than \$700,000 per person and

Deleted: unless additional coverage is required

2. Automobile liability for owned, non-owned and hired autos with liability limits of \$5,000,000 per accident. The Board is to be included as an additional insured on a primary, non-contributory basis.

Deleted: named

Deleted: for any liability arising directly or indirectly under or in connection with this Contract

3. Professional Liability, also known as Errors and Omissions Insurance, for those Contractors required to hold a professional license in Alabama with limits of \$700,000 claim or wrongful act and \$5,000,000 aggregate. This is coverage available to pay for liability arising out of the performance of professional or business related duties, with coverage tailored to the needs of the specific profession. Coverage for the benefit of the Board shall be renewed or an extended reporting period provided, together totaling a period of two (2) years after the date of service provided under this Contract.

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Deleted: occurrence

Deleted: named

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Deleted: per cause of action

4. Fiduciary Liability would be required if the Contractor is responsible for the management and oversight of various employee benefit plans and programs such as pensions, profit-sharing and savings, among others. These contractors face potential claims for mismanagement brought by plan members. Limits should be no less than \$700,000 per cause of action and \$5,000,000 per occurrence.

Deleted: per occurrence

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5. Valuable Papers coverage, available under an Inland Marine policy, is recommended when any plans, drawings, media, data, records, reports, billings and other documents are produced or used under this agreement. Insurance must have limits sufficient to pay for the re-creation and reconstruction of such records. Contractor may self insure this coverage.

6. The Contractor shall secure the appropriate Surety or Fidelity Bond(s) as required by applicable statutes.

7. The Contractor shall provide proof of such insurance coverage by tendering to the Board a certificate of insurance prior to the commencement of this Contract and proof of workers' compensation coverage meeting all statutory requirements. In addition, proof of an "all states endorsement" covering claims occurring outside Alabama is required if any of the services provided under this Contract involve work outside of Alabama.

B. The Contractor's insurance coverage must meet the following additional requirements:

1. The insurer must have a certificate of authority or other appropriate authorization to operate in the state in which the policy was issued.
2. Any deductible or self-insured retention amount or other similar obligation under the insurance policies shall be the sole obligation of the Contractor.
3. The duty to indemnify the Board under this Contract shall not be limited by the insurance required in this Contract.
4. The Contractor waives and agrees to require their insurer to waive their rights of subrogation against the Board.

C. Failure to provide insurance as required in this Contract may be deemed a material breach of contract entitling the Board to immediately terminate this Contract. The Contractor shall furnish a certificate of insurance and all endorsements to the Board before the commencement of this Contract. Contractor shall provide at least thirty (30) days' prior written notice to the Board of any cancellation or non renewal of any required coverage that is not replaced.

**Deleted:** The Board will be defended, indemnified and held harmless to the full extent of any coverage actually secured by the Contractor in excess of the minimum requirements set forth above.

**Deleted:** <#>The insurance required in this Contract, through a policy or endorsement(s), shall include a provision that the policy and endorsements may not be canceled or modified without thirty (30) days' prior written notice to the Board.¶  
<#>¶

**26. Key Person(s).**

A. If both parties have designated that certain individual(s) are essential to the services offered, the parties agree that should such individual(s) leave their employment during the term of this Contract for whatever reason, the Board shall have the right to terminate this Contract upon thirty (30) days' prior written notice.

B. In the event that the Contractor is an individual, that individual shall be considered a key person and, as such, essential to this Contract. Substitution of another for the Contractor shall not be permitted without express written consent of the Board.

Nothing in sections A and B, above shall be construed to prevent the Contractor from using the services of others to perform tasks ancillary to those tasks which directly require the expertise of the key person. Examples of such ancillary tasks include secretarial, clerical, and common labor duties. The Contractor shall, at all times, remain responsible for the performance of all necessary tasks, whether performed by a key person or others.

Key person(s) to this Contract is/are \_\_\_\_\_

**AT&T Response:**

AT&T cannot agree to this requirement. AT&T must retain the right to allocate its own employee resources. Due to the possibility of promotions or role reassignments, AT&T is unable to guarantee that assigned personnel will remain on the project for the duration of any

resulting contract. However, AT&T understands the importance of consistent support and will work with the Customer to the greatest extent possible to minimize personnel transition and to ensure that the performance of the personnel supporting the Customer and this project meets or exceeds the Customer's expectations.

AT&T shall employ and make available at reasonable times an adequate number of appropriately qualified and trained personnel, familiar with Customer's operations and use of telecommunications services, to provide and support Customer's use of the Services in accordance with the terms of AT&T's response to this RFP. The identities and titles of specific persons and their availability to provide and support Customer's needs will be separately established by authorized representatives of AT&T upon award of the RFP to AT&T. If required after contract award, AT&T will supply documentation to authenticate technical expertise, within the parameters of confidentiality limits

The individual that will be assigned overall responsibility for the project is \_\_\_\_\_.

**27. Minority, Women, and Veteran Business Enterprise Participation.** Substantially all of the work under this Contract will be performed directly by the Contractor's employees or by its certified technicians. Prior to the time the Contractor employs any third party subcontractors, the Contractor will work with the Board to identify opportunities and select qualified participants.

**28. Licensing Standards.** The Contractor, its employees and subcontractors shall comply with all applicable licensing standards, certification standards, accrediting standards and any other laws, rules, or regulations governing services to be provided by the Contractor pursuant to this Contract. The Board will not pay the Contractor for any services performed when the Contractor, its employees or subcontractors are not in compliance with such applicable standards, laws, rules, or regulations. If any license, certification or accreditation expires or is revoked, or any disciplinary action is taken against an applicable license, certification, or accreditation, the Contractor shall notify the Board immediately and the Board, at its option, may immediately terminate this Contract.

**AT&T Response:**

AT&T's Response is submitted under applicable laws and regulations current at the time of contract execution. Changes in laws and regulations may require changes in pricing and performance.

**29. Merger & Modification.** This Contract constitutes the entire agreement between the parties. No understandings, agreements, or representations, oral or written, not specified within this Contract will be valid provisions of this Contract. This Contract may not be modified, supplemented, or amended, except by written agreement signed by all necessary parties.

**30. Nondiscrimination.**

Pursuant to the federal Civil Rights Act of 1964, the Age Discrimination in Employment Act, and the Americans with Disabilities Act, the Contractor covenants that it shall not discriminate against any employee or applicant for employment relating to this Contract with respect to the hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of the employee's or applicant's race, color, national origin, religion, sex, age, disability,

ancestry, status as a veteran, or any other characteristic protected by federal, state, or local law (“Protected Characteristics”). Contractor certifies compliance with applicable federal laws, regulations, and executive orders prohibiting discrimination based on the Protected Characteristics in the provision of services. Breach of this paragraph may be regarded as a material breach of this Contract, but nothing in this paragraph shall be construed to imply or establish an employment relationship between the Board and any applicant or employee of the Contractor or any subcontractor.

The Board is periodically a recipient of federal funds, and therefore, where applicable, Contractor and any subcontractors shall comply with requisite affirmative action requirements, including reporting, pursuant to 41 CFR Chapter 60, as amended, and Section 202 of Executive Order 11246.

**31. Notice to Parties.** Whenever any notice, statement or other communication is required under this Contract, it shall be sent by first class mail or via an established courier or delivery service to the following addresses, unless otherwise specifically advised.

A. Notices to the Board shall be sent to:

Alabama 911 Board  
Attn: \_\_\_\_\_  
[ADDRESS]

B. Notices to the Contractor shall be sent to: **(Include contact name and/or title, name of vendor & address)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Payments to the Contractor shall be made via electronic funds transfer in accordance with instructions filed by the Contractor with the Board.

**32. Order of Precedence; Incorporation by Reference.** Any inconsistency or ambiguity in this Contract shall be resolved by giving precedence in the following order: (1) this Contract, (2) attachments prepared by the Board, (3) RFP#\_\_\_\_\_, (4) Contractor’s response to RFP#\_\_\_\_\_, and (5) attachments prepared by the Contractor. All attachments, and all documents referred to in this paragraph, are hereby incorporated fully by reference.

**AT&T Response:**

The order of precedence will need to be negotiated to ensure that matters contained in Contractor’s response and mutually agreed to between the parties take precedence over the RFP itself.

**33. Ownership of Documents and Materials.** All documents, records, programs, data, film, tape, articles, memoranda, and other materials not developed or licensed by the Contractor prior to execution of this Contract, but specifically developed under this Contract shall be considered “work for hire” and the Contractor transfers any ownership claim to the Board and all such materials will be the property of the Board. Use of these materials, other than related to contract performance by the Contractor, without the prior written consent of the Board, is prohibited. During the performance of this Contract, the Contractor shall be responsible for any loss of or damage to these materials developed for or supplied by the Board

and used to develop or assist in the services provided while the materials are in the possession of the Contractor. Any loss or damage thereto shall be restored at the Contractor's expense. The Contractor shall provide the Board full, immediate, and unrestricted access to the work product during the term of this Contract.

**34. Payments.** All payments shall be made 60 days in arrears by electronic funds transfer to the financial institution designated by the Contractor in writing. No payments will be made in advance of receipt of the goods or services that are the subject of this Contract.

**AT&T Response:**

Based on the State's response to question 15 and Addendum #3, AT&T is in compliance with the State of Alabama Prompt Payment Act.

**35. Penalties/Interest/Attorney's Fees.** The Board will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest or attorney's fees, except as permitted by Alabama law. – Any liability resulting from the Board's failure to make prompt payment shall be based solely on the amount of funding originating from the Board and shall not be based on funding from federal or other sources.

**36. Progress Reports.** The Contractor shall submit progress reports to the Board upon request. The progress reports shall serve the purpose of assuring the Board that work is progressing in line with the schedule, and that completion can be reasonably assured on the scheduled date.

**37. Public Record.** The Contractor acknowledges that the Board will not treat this Contract as containing confidential information. Use by the public of the information contained in this Contract shall not be considered an act of the Board.

**38. Renewal Option.** This Contract may be renewed under the same terms and conditions, subject to the approval of the Board. The term of the renewed contract may not be longer than the term of the original contract.

**39. Severability.** The invalidity of any section, subsection, clause or provision of this Contract shall not affect the validity of the remaining sections, subsections, clauses or provisions of this Contract.

**40. Substantial Performance.** This Contract shall be deemed to be substantially performed only when fully performed according to its terms and conditions and any written amendments or supplements.

**41. Taxes.** The Board is exempt from most state and local taxes and many federal taxes. The Board will not be responsible for any taxes levied on the Contractor as a result of this Contract.

**AT&T Response:**

Prices set forth in a Pricing Schedule are exclusive of and Customer will pay all taxes (excluding those on AT&T's net income), surcharges, recovery fees, customs clearances, duties, levies, shipping charges and other similar charges (and any associated interest and penalties resulting from Customer's failure to timely pay such taxes or similar charges) relating to the sale, transfer of ownership, installation, license, use or provision of the Services, except to the extent

Customer provides a valid exemption certificate prior to the delivery of Services. To the extent required by law, Customer may withhold or deduct any applicable taxes from payments due to AT&T, provided that Customer will use reasonable commercial efforts to minimize any such taxes to the extent allowed by law or treaty and will furnish AT&T with such evidence as may be required by relevant taxing authorities to establish that such tax has been paid so that AT&T may claim any applicable credit.

**42. Termination for Convenience.** This Contract may be terminated, in whole or in part, by the Board whenever, for any reason, the Board determines that such termination is in its best interest. Termination of services shall be effected by delivery to the Contractor of a Termination Notice at least thirty (30) days prior to the termination effective date, specifying the extent to which performance of services under such termination becomes effective. The Contractor shall be compensated for services properly rendered prior to the effective date of termination. The Board will not be liable for services performed after the effective date of termination. The Contractor shall be compensated for services herein provided but in no case shall total payment made to the Contractor exceed the original contract price or shall any price increase be allowed on individual line items if canceled only in part prior to the original termination date.

**43. Termination for Default.**

A. With the provision of thirty (30) days' notice to the Contractor, the Board may terminate this Contract in whole or in part if the Contractor fails to:

1. Correct or cure any breach of this Contract; the time to correct or cure the breach may be extended beyond thirty (30) days if the Board determines progress is being made and the extension is agreed to by the parties;
2. Deliver the supplies or perform the services within the time specified in this Contract or any extension;
3. Make progress so as to endanger performance of this Contract; or
4. Perform any of the other provisions of this Contract.

B. If the Board terminates this Contract in whole or in part, it may acquire, under the terms and in the manner the Board considers appropriate, supplies or services similar to those terminated, and the Contractor will be liable to the Board for any excess costs for those supplies or services. However, the Contractor shall continue the work not terminated

C. The Board shall pay the contract price for completed supplies delivered and services accepted. The Contractor and the Board shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. The Board may withhold from these amounts any sum the Board determines to be necessary to protect the Board against loss because of outstanding liens or claims of former lien holders.

D. The rights and remedies of the Board in this clause are in addition to any other rights and remedies provided by law or equity or under this Contract.

**AT&T Response:**

AT&T takes exception to this Section 43 and suggests we incorporate the following:

### 43. SUSPENSION AND TERMINATION

- 43.1 Termination of Agreement. This Agreement may be terminated immediately upon notice by either party if the other party becomes insolvent, ceases operations, is the subject of a bankruptcy petition, enters receivership or any state insolvency proceeding or makes an assignment for the benefit of its creditors.
- 43.2 Termination or Suspension. The following additional termination provisions apply:
- (a) Material Breach. If either party fails to perform or observe any material warranty, representation, term or condition of this Agreement, including non-payment of charges, and such failure continues unremedied for 30 days after receipt of notice, the aggrieved party may terminate (and AT&T may suspend and later terminate) the affected Service Components and, if the breach materially and adversely affects the entire Agreement, terminate (and AT&T may suspend and later terminate) the entire Agreement.
  - (b) Materially Adverse Impact. If AT&T revises a Service Publication, the revision has a materially adverse impact on Customer and AT&T does not effect revisions that remedy such materially adverse impact within 30 days after receipt of notice from Customer, then Customer may, as Customer's sole remedy, elect to terminate the affected Service Components on 30 days' notice to AT&T, given not later than 90 days after Customer first learns of the revision to the Service Publication. "Materially adverse impacts" do not include changes to non-stabilized pricing, changes required by governmental authority, or assessment of or changes to additional charges such as surcharges or taxes.
  - (c) Internet Services. If Customer fails to rectify a violation of the AUP within 5 days after receiving notice from AT&T, AT&T may suspend the affected Service Components. AT&T reserves the right, however, to suspend or terminate immediately when: (i) AT&T's suspension or termination is in response to multiple or repeated AUP violations or complaints; (ii) AT&T is acting in response to a court order or governmental notice that certain conduct must be stopped; or (iii) AT&T reasonably determines that (a) it may be exposed to sanctions, liability, prosecution or other adverse consequences under applicable law if AT&T were to allow the violation to continue; (b) such violation may harm or interfere with the integrity, normal operations or security of AT&T's network or networks with which AT&T is interconnected or may interfere with another customer's use of AT&T services or the Internet; or (c) such violation otherwise presents an imminent risk of harm to AT&T, AT&T's customers or its or their respective employees.
  - (d) Fraud or Abuse. AT&T may terminate or suspend an affected Service or Service Component and, if the activity materially and adversely affects the entire Agreement, terminate or suspend the entire Agreement, immediately by providing Customer with as much advance notice as is reasonably practicable under the circumstances if Customer, in the course of breaching the Agreement: (i) commits a fraud upon AT&T; (ii) uses the Service to commit a fraud upon another party; (iii) unlawfully uses the Service;

(iv) abuses or misuses AT&T's network or Service; or (v) interferes with another customer's use of AT&T's network or services.

- (e) Infringing Services. If the options described in Section 7.3 (Infringing Services) are not reasonably available, AT&T may at its option terminate the affected Services or Service Components without liability other than as stated in Section 7.1 (AT&T's Obligations).
- (f) Hazardous Materials. If AT&T encounters any Hazardous Materials at the Site, AT&T may terminate the affected Services or Service Components or may suspend performance until Customer removes and remediates the Hazardous Materials at Customer's expense in accordance with applicable law.

#### 43.3 Effect of Termination.

- (a) Termination or suspension by either party of a Service or Service Component does not waive any other rights or remedies a party may have under this Agreement and will not affect the rights and obligations of the parties regarding any other Service or Service Component.
- (b) If a Service or Service Component is terminated, Customer will pay all amounts incurred prior to the effective date of termination.

#### 43.4 Termination Charges.

- (a) If Customer terminates this Agreement or an affected Service or Service Component for cause in accordance with the Agreement or if AT&T terminates a Service or Service Component other than for cause, Customer will not be liable for the termination charges set forth in this Section 43.4.
- (b) If Customer or AT&T terminates a Service or Service Component prior to Cutover other than as set forth in Section 43.4(a), Customer (i) will pay any pre-Cutover termination or cancellation charges set out in a Pricing Schedule or Service Publication, or (ii) in the absence of such specified charges, will reimburse AT&T for time and materials incurred prior to the effective date of termination, plus any third party charges resulting from the termination.
- (c) If Customer or AT&T terminates a Service or Service Component after Cutover other than as set forth in Section 43.4(a), Customer will pay applicable termination charges as follows: (i) 50% (unless a different amount is specified in the Pricing Schedule) of any unpaid recurring charges for the terminated Service or Service Component attributable to the unexpired portion of an applicable Minimum Payment Period; (ii) if termination occurs before the end of an applicable Minimum Retention Period, any associated credits or waived or unpaid non-recurring charges; and (iii) any charges incurred by AT&T from a third party (i.e., not an AT&T Affiliate) due to the termination. The charges set forth in Sections 43.4(c)(i) and (ii) will not apply if a terminated Service Component is

replaced with an upgraded Service Component at the same Site, but only if the Minimum Payment Period or Minimum Retention Period, as applicable, (the "Minimum Period") and associated charge for the replacement Service Component are equal to or greater than the corresponding Minimum Period and associated charge for the terminated Service Component, respectively, and if the upgrade is not restricted in the applicable Service Publication.

- (d) In addition, if Customer terminates a Pricing Schedule that has a MARC, Customer will pay an amount equal to 50% of the unsatisfied MARC for the balance of the Pricing Schedule Term.

**44. Travel.** No expenses for travel will be reimbursed unless specifically permitted under the scope of services or consideration provisions. If approved by the Board, expenditures made by the Contractor for travel will be reimbursed at the current rate paid by the Board and in accordance with the State Travel Policies and Procedures as specified in the current Financial Management Circular. Out-of-state travel requests must be reviewed by the Board for availability of funds and for appropriateness per Circular guidelines.

**45. Waiver of Rights.** No right conferred on either party under this Contract shall be deemed waived, and no breach of this Contract excused, unless such waiver is in writing and signed by the party claimed to have waived such right. Neither the Board's review, approval or acceptance of, nor payment for, the services required under this Contract shall be construed to operate as a waiver of any rights under this Contract or of any cause of action arising out of the performance of this Contract, and the Contractor shall be and remain liable to the Board in accordance with applicable law for all damages to the Board caused by the Contractor's negligent performance of any of the services furnished under this Contract.

**AT&T Response:**

AT&T understands and agrees, subject to a commercially reasonable limitation of liability clause.

**46. Work Standards.** The Contractor shall execute its responsibilities by following and applying at all times the highest professional and technical guidelines and standards. If the Board becomes dissatisfied with the work product of or the working relationship with those individuals assigned to work on this Contract, the Board may request in writing the replacement of any or all such individuals, and the Contractor shall grant such request.

**AT&T Response:**

AT&T shall employ and make available at reasonable times an adequate number of appropriately qualified and trained personnel, familiar with Customer's operations and use of telecommunications services, to provide and support Customer's use of the Services in accordance with the terms of AT&T's response to this RFP. AT&T retains the right to manage and deploy its personnel as appropriate from time to time. If Customer requests AT&T to substitute an employee, Customer shall provide such requests in writing, explaining in reasonable detail the reason(s) for the removal request. Any such request shall be for lawful

reasons. AT&T will work with the Customer to reach a solution geared to providing Services in compliance with contracted standards.

**47 Non-Collusion and Acceptance**

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Contract other than that which appears upon the face hereof.

**AT&T Response:**

**48. LIMITATIONS OF LIABILITY AND DISCLAIMERS**

**48.1 Limitation of Liability.**

- (a) EITHER PARTY'S ENTIRE LIABILITY AND THE OTHER PARTY'S EXCLUSIVE REMEDY FOR DAMAGES ON ACCOUNT OF ANY CLAIM ARISING OUT OF AND NOT DISCLAIMED UNDER THIS AGREEMENT SHALL BE:
  - (i) FOR BODILY INJURY, DEATH OR DAMAGE TO REAL PROPERTY OR TO TANGIBLE PERSONAL PROPERTY PROXIMATELY CAUSED BY A PARTY'S NEGLIGENCE, PROVEN DIRECT DAMAGES;
  - (iii) FOR CLAIMS ARISING FROM THE OTHER PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, PROVEN DAMAGES; OR
  - (iv) FOR CLAIMS OTHER THAN THOSE SET FORTH IN SECTION 48.1(a)(i)-(iii), PROVEN DIRECT DAMAGES NOT TO EXCEED, ON A PER CLAIM OR AGGREGATE BASIS DURING ANY TWELVE (12) MONTH PERIOD, AN AMOUNT EQUAL TO THE TOTAL NET CHARGES INCURRED BY CUSTOMER FOR THE AFFECTED SERVICE IN THE RELEVANT COUNTRY DURING THE THREE (3) MONTHS PRECEDING THE MONTH IN WHICH THE CLAIM AROSE.
- (b) EXCEPT IN THE CASE OF A PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, RELIANCE OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION DAMAGES FOR LOST PROFITS, ADVANTAGE, SAVINGS OR REVENUES OR FOR INCREASED COST OF OPERATIONS.
- (c) THE LIMITATIONS IN THIS SECTION 48 SHALL NOT LIMIT CUSTOMER'S RESPONSIBILITY FOR THE PAYMENT OF ALL PROPERLY DUE CHARGES UNDER THIS AGREEMENT.

**48.2 Disclaimer of Liability. AT&T WILL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF OR RELATING TO: INTEROPERABILITY, ACCESS OR INTERCONNECTION OF THE SERVICES**

WITH APPLICATIONS, DATA, EQUIPMENT, SERVICES, CONTENT OR NETWORKS PROVIDED BY CUSTOMER OR THIRD PARTIES; SERVICE DEFECTS, SERVICE LEVELS, DELAYS OR ANY SERVICE ERROR OR INTERRUPTION, INCLUDING INTERRUPTIONS OR ERRORS IN ROUTING OR COMPLETING ANY 911 OR OTHER EMERGENCY RESPONSE CALLS OR ANY OTHER CALLS OR TRANSMISSIONS (EXCEPT FOR CREDITS EXPLICITLY SET FORTH IN THIS AGREEMENT); LOST OR ALTERED MESSAGES OR TRANSMISSIONS; OR UNAUTHORIZED ACCESS TO OR THEFT, ALTERATION, LOSS OR DESTRUCTION OF CUSTOMER'S (OR ITS AFFILIATES', USERS' OR THIRD PARTIES') APPLICATIONS, CONTENT, DATA, PROGRAMS, INFORMATION, NETWORKS OR SYSTEMS.

48.3 Purchased Equipment and Vendor Software Warranty. AT&T shall pass through to Customer any warranties for Purchased Equipment and Vendor Software available from the manufacturer or licensor. The manufacturer or licensor, and not AT&T, is responsible for any such warranty terms and commitments. ALL SOFTWARE AND PURCHASED EQUIPMENT IS OTHERWISE PROVIDED TO CUSTOMER ON AN "AS IS" BASIS.

48.4 Disclaimer of Warranties. AT&T MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT AND SPECIFICALLY DISCLAIMS ANY WARRANTY ARISING BY USAGE OF TRADE OR BY COURSE OF DEALING. FURTHER, AT&T MAKES NO REPRESENTATION OR WARRANTY THAT TELEPHONE CALLS OR OTHER TRANSMISSIONS WILL BE ROUTED OR COMPLETED WITHOUT ERROR OR INTERRUPTION (INCLUDING CALLS TO 911 OR ANY SIMILAR EMERGENCY RESPONSE NUMBER) AND MAKES NO GUARANTEE REGARDING NETWORK SECURITY, THE ENCRYPTION EMPLOYED BY ANY SERVICE, THE INTEGRITY OF ANY DATA THAT IS SENT, BACKED UP, STORED OR SUBJECT TO LOAD BALANCING OR THAT AT&T'S SECURITY PROCEDURES WILL PREVENT THE LOSS OR ALTERATION OF OR IMPROPER ACCESS TO CUSTOMER'S DATA AND INFORMATION.

48.5 Application and Survival. The disclaimer of warranties and limitations of liability set forth in this Agreement will apply regardless of the form of action, whether in contract, equity, tort, strict liability or otherwise, of whether damages were foreseeable and of whether a party was advised of the possibility of such damages and will apply so as to limit the liability of each party and its Affiliates and their respective employees, directors, subcontractors and suppliers. The limitations of liability and disclaimers set out in this Section will survive failure of any exclusive remedies provided in this Agreement.

**49. Add Safe Working Environment.**

Safe Working Environment. Customer will ensure that the location at which AT&T installs, maintains or provides Services is a safe working environment, free of Hazardous Materials and reasonably suitable for the Services. "Hazardous Materials" mean any substance or material capable of posing an unreasonable risk to health, safety or property or whose use, transport, storage, handling, disposal or release is regulated by any law related to pollution, to protection of air, water or soil or to health and safety. AT&T shall have no obligation to perform work at a

location that is not a suitable and safe working environment or to handle, remove or dispose of Hazardous Materials.

**50. Add Access Right**

Access Right. Customer will in a timely manner allow AT&T access as reasonably required for the Services to property and equipment that Customer controls and will obtain at Customer's expense timely access for AT&T as reasonably required for the Services to property controlled by third parties such as Customer's landlord. AT&T will coordinate with and, except in an emergency, obtain Customer's consent to enter upon Customer's property and premises, which consent shall not be unreasonably withheld. Access rights mean the right to construct, install, repair, maintain, replace and remove access lines and network facilities and the right to use ancillary equipment space within a building for Customer's connection to AT&T's network. Customer must provide AT&T timely information and access to Customer's facilities and equipment as AT&T reasonably requires for the Services, subject to Customer's reasonable security policies. Customer will furnish any conduit, holes, wireways, wiring, plans, equipment, space, power/utilities and other items as AT&T reasonably requires for the Services and will obtain any necessary licenses, permits and consents (including easements and rights-of-way). Customer will have the Site ready for AT&T to perform its work according to a mutually agreed schedule.

**51. Add Publicity/Trademarks**

Publicity. Subject to any applicable public records laws, neither party may issue any public statements or announcements relating to the terms of this Agreement or to the provision of Services without the prior written consent of the other party.

Trademarks. Each party agrees not to display or use, in advertising or otherwise, any of the other party's trade names, logos, trademarks, service marks or other indicia of origin without the other party's prior written consent, which consent may be revoked at any time by notice.

**52. Add Deliverables**

- A. Services. AT&T agrees to either provide or arrange to have an AT&T Affiliate provide Services to Customer in accordance with this Contract, subject to availability and operational limitations of systems, facilities and equipment. Where required, an AT&T Affiliate authorized by the appropriate regulatory authority will be the service provider.
- B. AT&T Equipment. Services may include use of certain equipment owned by AT&T that is located at the Site ("AT&T Equipment"), but title to the AT&T Equipment will remain with AT&T. Customer must provide electric power for the AT&T Equipment and keep the AT&T Equipment physically secure and free from liens and encumbrances. Customer will bear the risk of loss or damage to AT&T Equipment (other than ordinary wear and tear) except to the extent caused by AT&T or its agents.

- C. Software. Any software used with the Services will be governed by the written terms and conditions applicable to such software. Title to software remains with AT&T or its supplier. Customer must comply with all such terms and conditions and they take precedence over this Contract as to such software.

**53. Add Import/Export Control**

Import/Export Control. The parties acknowledge that equipment, services, software, and technical information (including technical assistance and training) provided under this Contract may be subject to import and export laws, conventions or regulations, and any use or transfer of the equipment, products, software, and technical information must be in compliance with all such laws, conventions and regulations. The parties will not use, distribute, transfer, or transmit the equipment, services, software, or technical information (even if incorporated into other products) except in compliance with such laws, conventions and regulations. Customer, not AT&T, is responsible for complying with such laws, conventions and regulations for all information, equipment and software Customer transmits between countries using the Services.

**54. Add No Third Party Beneficiaries**

No Third Party Beneficiaries. This Agreement is for the benefit of permitted Customers and AT&T, and does not provide any third party (including Users) the right to enforce or bring an action for any remedy, claim, liability, reimbursement, cause of action or other right or privilege.

**55. Add Survival**

The respective obligations of Customer and AT&T that by their nature would continue beyond the termination or expiration of this Contract, including without limitation, the obligations set forth in Sections related to Confidentiality, Disclaimers and Limitations of Liability, and Indemnification, will survive termination or expiration.

**In Witness Whereof**, Contractor and the Board have, through their duly authorized representatives, entered into this Contract. The parties, having read and understood the foregoing terms of this Contract, do by their respective signatures dated below agree to the terms thereof.

[Contractor]

Alabama Statewide 911 Board

By: \_\_\_\_\_

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Printed Name: \_\_\_\_\_

AL-NG911-RFP-16-001

Title: \_\_\_\_\_

Title: \_\_\_\_\_

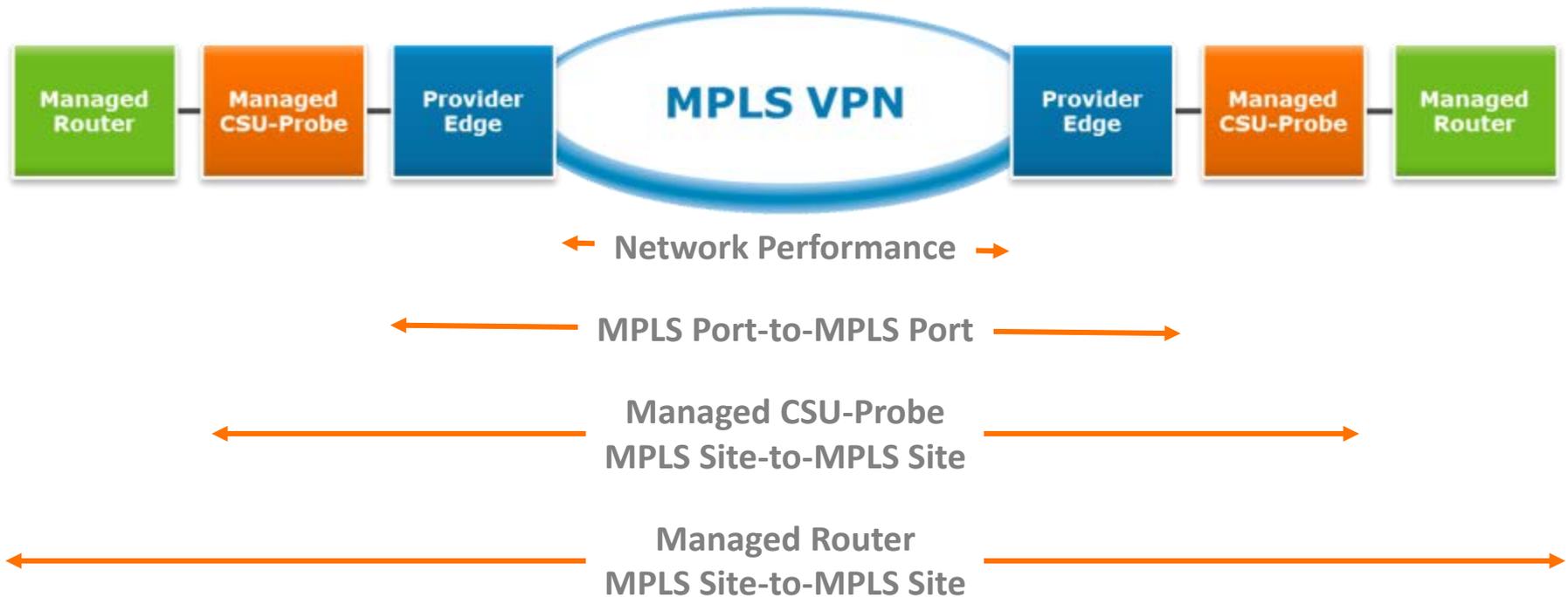
Date: \_\_\_\_\_

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

Questions:

# AT&T VPN Service – *Service Level Agreements*

*Assuring Reliability and Performance!*



AT&T management and Service Level demarcation points vary when subscribing to AT&T VPN Managed Customer Premises Equipment (CPE) Features

Consult the AT&T VPN Service Guide for full Service Level Agreement (SLA) descriptions

# SLA Eligibility Table – Provisioning, Site Availability, Network Performance

Customer eligibility for Service Level Agreements shall be determined by the Management Option ordered for a Site as described in the AT&T VPN SLA Eligibility Tables.

## SLA Eligibility Table

Table 1

### *Eligibility for On-Time Provisioning, Site Availability/Time to Restore and Network SLAs*

SLA	Site Management Option		
	None	Managed CSU-Probe	Managed Router
<b>On-Time Provisioning</b> New Starts	Yes	Yes	Yes
<b>On-Time Provisioning</b> Move, Add, Change, Disconnect (MACD)	Yes	Yes	Yes
<b>Site Availability/Time to Restore</b>	Yes	Yes	Yes*
<b>Network Latency, Network Data Delivery, Network Jitter</b>	Yes	Yes	Yes

\* Higher credit percentages are available to AT&T VPN Managed Router feature customers that have ordered resiliency at a given site. See the Customer SLA Target Lookup Form available from AT&T BusinessDirect®.



# SLA Eligibility Table – Port to Port Latency, Port Data Delivery, Site to Site

Eligibility shall be determined by the Management Option ordered for each Site in the pair.

## SLA Eligibility Table

Table 2

### MPLS Port-to-MPLS Port Latency, MPLS Port Data Delivery & MPLS Site-to-MPLS Site SLAs

Site 1 Management Option	Site 2 Management Option			
	None or Lite Managed Router	Managed CSU-Probe	Managed Router	Managed Router and Managed CSU-Probe
<b>None or Lite Managed Router</b>	Port to Port Latency Port Data Delivery			
<b>Managed CSU-Probe</b>	Port to Port Latency Port Data Delivery	Managed CSU-Probe Site to Site	Port to Port Latency Port Data Delivery	Managed CSU-Probe Site to Site
<b>Managed Router</b>	Port to Port Latency Port Data Delivery	Port to Port Latency Port Data Delivery	Managed Router Site to Site	Managed Router Site to Site
<b>Managed Router and Managed CSU-Probe</b>	Port to Port Latency Port Data Delivery	Managed CSU-Probe Site to Site	Managed Router Site to Site	Managed Router Site to Site

#### Definitions and Notes:

- “Port to Port Latency” means the AT&T VPN MPLS Port-to-MPLS Port Latency SLA is applicable to both Site 1 and Site 2. “Port Data Delivery” means the MPLS Port Data Delivery SLA is applicable to both Site 1 and Site 2.
- “Managed CSU-Probe Site to Site” means Managed CSU-Probe MPLS Site-to-MPLS Site Latency and MPLS Site-to-MPLS Site Data Delivery SLAs applicable to both Site 1 and Site 2.
- “Managed Router Site to Site” means MPLS Site-to-MPLS Site Latency, MPLS Site-to-MPLS Site Data Delivery and MPLS Site-to-MPLS Site Jitter SLAs are applicable to Site 1 and Site 2.
- “Managed CSU-Probe MPLS Site-to-MPLS Site Latency and Managed CSU-Probe MPLS Site-to-MPLS Site Data Delivery SLAs do not apply to Managed CSU-Probe Sites or Site pairs not included in the single applicable VPN designated by Customer for such SLAs.
- See AT&T VPN Business Service Guide – AT&T VPN Service for access types that are excluded from the MPLS Port-to-MPLS Port and MPLS Site-to-MPLS Site SLAs.



# On-Time Provisioning SLA

## Installation

- Complete installation of new Service at a Site , including AT&T-provided access lines, by the applicable Due Date.
- If AT&T does not meet this performance objective, Customer is eligible to receive a credit equal to one month of the discounted Covered Monthly Charges for the Site that was not installed on time.

**NOTE:** If AT&T agrees to expedite an order for a Service Component, the On-Time Provisioning SLA applies to the **original Due Date** provided by AT&T, **not** the expedited date.

## Move, Add, Change, Disconnect (MACD) Orders

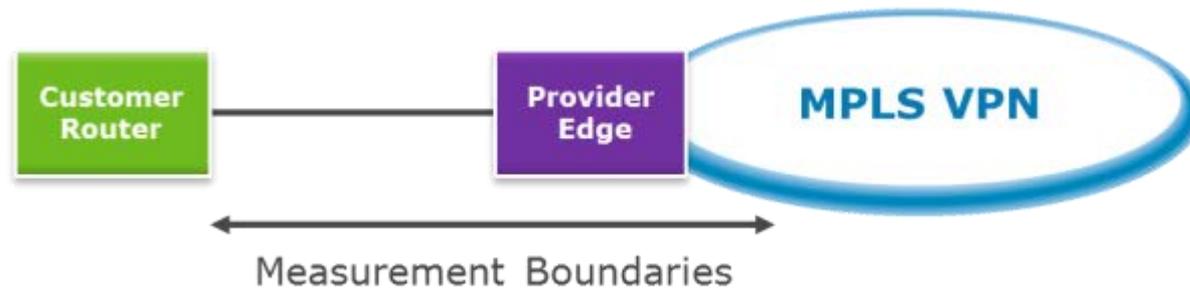
Complete the requested change by the applicable Due Date.

If AT&T does not meet this performance objective:

- **No Management Option or *Lite Managed Router Option***  
Customer is eligible to receive a credit of 50% of the Non-Recurring charges for Ports, PVCs, COS Packages, DSL or CIR changes
- **Managed Router Feature**
  - Customer is eligible to receive a credit equal to 50% of the one-time charge for the physical MACD
  - Applies to the following physical MACDs:
    - Moves
    - Add the Managed Router feature to existing Service
    - Add router cards to router
    - Resiliency
    - Disconnect router or router/port
- **Managed CSU-Probe Feature**
  - Customer is eligible to receive a credit equal to 50% of the one-time charge for the physical MACD
  - Applies to the following physical MACDs:
    - Add Managed CSU-Probe feature to existing Service
    - Disconnect CSU-Probe



# Site Availability/Time to Restore SLA



## Site Availability/Time to Restore SLA

Performance objective: Site Availability is 100%

If AT&T does not meet this performance objective, Customer is eligible for a credit for each Outage –

- Escalating credits based on Outage duration (beginning with 1 minute)
- Credits may escalate up to 100% of the applicable discounted Monthly Recurring Charges

Measurement of an Outage –

- Begins when a trouble ticket is opened and Customer releases the affected Service Component(s) to AT&T
- Ends when AT&T makes its first attempt to notify Customer that the problem has been solved and Services are restored



# Performance SLAs

## Network Latency, Data Delivery, and Jitter Performance

AT&T provides SLAs for Network Latency, Network Data Delivery, and Network Jitter

Network SLAs are provided for **ALL** AT&T VPN Customers

AT&T BusinessDirect® *Global Performance Reporting* delivers actual Monthly performance measurements alongside performance targets within and between regions

### Missed Performance Objective

Upon verified claim – Customer is eligible for a credit equal to 1/30th of Customer’s total discounted Covered Monthly Charges for Sites in the affected Region (or in each Region) for that month

Network Performance Objectives			
Within Region	Latency Objectives	Data Delivery Objectives	Jitter Objectives
<b>United States*</b>	37 ms	99.95%	1.0 ms
<b>Canada</b>	40 ms	99.90%	1.2 ms
<b>CALA</b>	135 ms	99.90%	1.2 ms
<b>EMEA</b>	35 ms	99.90%	1.2 ms
<b>Europe</b>	22 ms	99.90%	1.2 ms
<b>Asia Pacific</b>	80 ms	99.90%	1.2 ms
Between Regions	Latency Objectives	Data Delivery Objectives	Jitter Objectives
<b>Asia Pacific to US West Coast</b>	150 ms	99.90%	1.2 ms
<b>Asia Pacific to Europe</b>	245 ms	99.90%	1.2 ms
<b>Europe to US East Coast</b>	90 ms	99.90%	1.2 ms
<b>Europe to US West Coast</b>	160 ms	99.90%	1.2 ms
<b>United States* to Canada</b>	25 ms	99.90%	1.2 ms
<b>United States* to CALA</b>	110ms	99.90%	1.2 ms

\*Measurements for the US Region include Sites located within the US Mainland only but will be used to determine credits for US Sites generally (including Alaska, Hawaii, Puerto Rico, and the Virgin Islands)



# Performance SLAs

## Customer-Specific Latency, Data Delivery, and Jitter Performance

### Transport MPLS and Lite Managed Router Option

- Port-to-MPLS Port Latency SLA
- Port Data Delivery SLA

### Managed Router MPLS Site-to-MPLS Site

- Latency SLA
- Data Delivery SLA
- Jitter SLA

### Managed CSU-Probe MPLS Site-to-MPLS Site

- Latency SLA
- Data Delivery SLA

### Missed Performance Objective

Upon verified claim – Customer is eligible for a credit equal to 10% of the discounted **AT&T VPN Service** monthly charges for the affected sites

United States & United Kingdom Examples			
Performance SLA Metrics United States & United Kingdom	Transport and Lite Managed Router MPLS Port-to-MPLS Port	Managed Router MPLS Site-to-MPLS Site T1/E1 Access at Both Customer Sites , By Class of Service (CoS)	Managed CSU-Probe MPLS Site-to-MPLS Site T1/E1 Access at Both Customer Sites
<b>Latency</b> (Within the United States)	100 ms	CoS1 = 104 ms CoS2V & CoS2 = 108 ms CoS3 & CoS5 = 120 ms	120 ms
<b>Latency</b> (Within the United Kingdom)	50 ms	CoS1 = 54 ms CoS2V & CoS2 = 58 ms CoS3 & CoS5 = 70 ms	70 ms
<b>Data Delivery</b> (Within the United States)	99.90%	CoS1, CoS2V & CoS2 = 99.90% CoS3 & CoS5 = 99.80%	99.80%
<b>Data Delivery</b> (Within the United Kingdom)	99.90%	CoS1, CoS2V & CoS2 = 99.90% CoS3 & CoS5 = 99.80%	99.80%
<b>Jitter</b> (Within the United States)		CoS1 = 10 ms CoS2V = 12 ms	
<b>Jitter</b> (Within the United Kingdom)		CoS1 = 10 ms CoS2V = 12 ms	



## APPENDIX - 911-E911 CLEC

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## 1.0 Introduction

- 1.1 This Attachment sets forth terms and conditions by which AT&T-21STATE will provide CLEC with access to AT&T-21STATE's 911 and E911 Databases and provide Interconnection and Call Routing for purposes of 911 call completion to a Public Safety Answering Point (PSAP) as required by Section 251 of the Act.
- 1.2 The Parties acknowledge and agree that AT&T-21STATE can only provide E911 Service in a territory where an AT&T-21STATE is the E911 network provider, and that only said service configuration will be provided once it is purchased by the E911 Customer and/or PSAP. Access to AT&T-21STATE's E911 Selective Routers and E911 Database Management System will be by mutual agreement between the Parties.
- 1.3 For CLEC's own switches, AT&T-21STATE shall provide access to its E911 Selective Routers as described herein only where the PSAP and/or E911 Customer served by the E911 Selective Routers has approved CLEC to carry E911 Emergency Services calls, which approval is subject to being revoked, conditioned, or modified by the PSAP and/or E911 Customer at any time.

## 2.0 Definitions

- 2.1 "911 System" means the set of network, database and customer premise equipment (CPE) components required to provide 911 service.
- 2.2 "911 Trunk" or "E911 Trunk" means a trunk capable of transmitting Automatic Number Identification (ANI) associated with a call to 911 from CLEC's End Office to the E911 system.
- 2.3 "Automatic Location Identification (ALI)" means the automatic display at the PSAP of the caller's telephone number, the address/location of the telephone and, in some cases, supplementary emergency services information.
- 2.4 "Automatic Number Identification (ANI)" means the telephone number associated with the access line from which a call to 911 originates.
- 2.5 "Company Identifier" or "Company ID" means a three (3) to five (5) character identifier chosen by the Local Exchange Carrier that distinguishes the entity providing dial tone to the End User. The Company Identifier is maintained by NENA in a nationally accessible database.
- 2.6 "Database Management System (DBMS)" means a system of manual procedures and computer programs used to create, store and update the data required to provide Selective Routing (SR) and/or ALI for 911 systems.
- 2.7 "E911 Customer" means a municipality or other state or local government unit, or an authorized agent of one (1) or more municipalities or other state or local government units to whom authority has been lawfully delegated to respond to public emergency telephone calls, at a minimum, for emergency police and fire services through the use of one (1) telephone number, 911.
- 2.8 "E911 Universal Emergency Number Service (E911)" (also referred to as "Expanded 911 Service" or "Enhanced 911 Service") or "E911 Service" means a telephone Exchange communications service whereby a public safety answering point (PSAP) answers telephone calls placed by dialing the number 911. E911 includes the service provided by the lines and equipment associated with the service arrangement for the answering, transferring, and dispatching of public emergency telephone calls dialed to 911. E911 provides completion of a call to 911 via dedicated trunking facilities and includes ANI, ALI, and/or SR.
- 2.9 "Emergency Services" means police, fire, ambulance, rescue, and medical services.
- 2.10 "Emergency Service Number (ESN)" means a three (3) to five (5) digit number representing a unique combination of Emergency Services agencies designated to serve a specific range of addresses within a particular geographical area. The ESN facilitates SR and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper Emergency Services agency (ies).
- 2.11 "National Emergency Number Association (NENA)" is a not-for-profit corporation established in 1982 to further the goal of "One Nation-One Number". NENA is a networking source and promotes research, planning, and training.

NENA strives to educate, set standards and provide certification programs, legislative representation and technical assistance for implementing and managing 911 systems.

- 2.12 "Public Safety Answering Point (PSAP)" means an answering location for 911 calls originating in a given area. The E911 Customer may designate a PSAP as primary or secondary, which refers to the order in which calls are directed for answering. Primary PSAPs answer calls; secondary PSAPs receive calls on a transfer basis. PSAPs are public safety agencies such as police, fire, emergency medical, etc., or a common bureau serving a group of such entities.
- 2.13 "Selective Routing" (SR) means the routing and "E911 Selective Router" (E911 SR) means the equipment used to route a call to 911 to the proper PSAP based upon the number and location of the caller. SR is controlled by an ESN, which is derived from the location of the access line from which the 911 call was placed.

### 3.0 AT&T Responsibilities

- 3.1 AT&T-21STATE shall provide and maintain such equipment at the E911 SR and the DBMS as is necessary to provide CLEC with nondiscriminatory access to E911 Emergency Service as described in this Attachment.

#### 3.2 Call Routing:

- 3.2.1 AT&T-21STATE will route 911 calls from the AT&T-21STATE SR to the designated primary PSAP or to designated alternate locations, according to routing criteria specified by the PSAP.
- 3.2.2 AT&T-21STATE will forward the ANI to the calling party number it receives from CLEC and the associated 911 ALI to the PSAP for display. If no ANI is forwarded by CLEC, AT&T-21STATE will forward an Emergency Service Central Office (ESCO) identification code for display at the PSAP. If ANI is forwarded by the CLEC, but no ALI record is found in the E911 DBMS, AT&T-21STATE will report this "No Record Found" condition to the CLEC in accordance with NENA standards.

#### 3.3 Facilities and Trunking:

- 3.3.1 AT&T-21STATE shall provide and maintain sufficient dedicated E911 Trunks from AT&T-21STATE's E911 SR to the PSAP of the E911 Customer, according to provisions of the appropriate state Commission-approved tariff and documented specifications of the E911 Customer.
- 3.3.2 AT&T-21STATE will provide facilities to interconnect the CLEC to the AT&T-21STATE's E911SR, as specified in Attachment 02 -Network Interconnection of this Agreement or per the requirements set forth via the applicable state tariff. Additionally, CLEC has the option to secure interconnection facilities from another provider or provide such interconnection using their own facilities. If diverse facilities are requested by CLEC, AT&T-21STATE will provide such diversity where technically feasible, at standard applicable tariff rates.

#### 3.4 Database:

- 3.4.1 Where AT&T-21STATE manages the E911 Database, AT&T-21STATE shall provide CLEC access to the E911 Database to store CLEC's End User "911 Records" (i.e., the name, address, and associated telephone number(s) for each of CLEC's End Users). CLEC or its representative(s) is responsible for electronically providing End User 911 Records and updating this information.
- 3.4.2 Where AT&T-21STATE manages the E911 Database, AT&T-21STATE shall coordinate access to the AT&T-21STATE DBMS for the initial loading and updating of CLEC End User 911 Records.
- 3.4.3 Where AT&T-21STATE manages the E911 Database, AT&T-21STATE's E911 Database shall accept electronically transmitted files that are based upon NENA standards. Manual (i.e., facsimile) entry shall be utilized only in the event that the DBMS is not functioning properly.

### 4.0 CLEC Responsibilities

- 4.1 Call Routing (for CLEC's own switches):

- 4.1.1 CLEC will transport the appropriate 911 calls from each Point of Interconnection (POI) to the appropriate AT&T-21STATE E911 SR location.
- 4.1.2 CLEC will forward the ANI information of the party calling 911 to the AT&T-21STATE E911 SR.
- 4.2 Facilities and Trunking (for CLEC's own switches):
- 4.2.1 CLEC shall be financially responsible for the transport facilities to each AT&T-21STATE E911 SR that serves the Exchange Areas in which CLEC is authorized to and will provide Telephone Exchange Service.
- 4.2.2 CLEC acknowledges that its End Users in a single local calling scope may be served by different E911 SRs and CLEC shall be financially responsible for the transport facilities to route 911 calls from its End Users to the proper E911 SR.
- 4.2.3 CLEC shall order a minimum of two (2) one-way outgoing E911 Trunk(s) dedicated for originating 911 Emergency Service calls for each default PSAP or default ESN to interconnect to each appropriate AT&T-21STATE E911 SR, where applicable. Where Signaling System 7 (SS7) connectivity is available and required by the applicable E911 Customer, the Parties agree to implement Common Channel Signaling (CCS) trunking rather than Multi-Frequency (MF) trunking.
- 4.2.4 CLEC is responsible for ordering a separate E911 Trunk group from AT&T-21STATE for each county, default PSAP or other geographic area that the CLEC serves if the E911 Customer for such county or geographic area has a specified varying default routing condition. Where PSAPs do not have the technical capability to receive 10-digit ANI, E911 traffic must be transmitted over a separate trunk group specific to the underlying technology. CLEC will have administrative control for the purpose of issuing ASRs on this trunk group. Where the parties utilize SS7 signaling and the E911 network has the technology available, only one (1) E911 Trunk group shall be established to handle multiple NPAs within the local Exchange Area or LATA. If the E911 network does not have the appropriate technology available, a SS7 trunk group shall be established per NPA in the local Exchange Area or LATA. In addition, 911 traffic originating in one (1) NPA must be transmitted over a separate 911 Trunk group from 911 traffic originating in any other NPA 911.
- 4.2.5 CLEC shall maintain facility transport capacity sufficient to route 911 traffic over trunks dedicated to 911 Interconnection between the CLEC switch and the AT&T-21STATE E911 SR.
- 4.2.6 CLEC shall order sufficient trunking to route CLEC's originating 911 calls to the designated AT&T-21STATE E911 SR.
- 4.2.7 Diverse (i.e., separate) 911 facilities are highly recommended and may be required by the Commission or E911 Customer. If required by the E911 Customer, diverse 911 Trunks shall be ordered in the same fashion as the primary 911 Trunks. CLEC is responsible for initiating trunking and facility orders for diverse routes for 911 Interconnection.
- 4.2.8 CLEC is responsible for determining the proper quantity of trunks and transport facilities from its switch (es) to interconnect with the AT&T-21STATE E911 SR.
- 4.2.9 CLEC shall engineer its 911 Trunks to attain a minimum P.01 grade of service as measured using the time consistent average busy season busy hour twenty (20) day averaged loads applied to industry standard Neal-Wilkinson Trunk Group Capacity algorithms (using Medium day-to-day Variation and 1.0 Peakedness factor), or such other minimum grade of service as required by Applicable Law.
- 4.2.10 CLEC shall monitor its 911 Trunks for the purpose of determining originating network traffic volumes. If CLEC's traffic study indicates that additional 911 Trunks are needed to meet the current level of 911 call volumes, CLEC shall provision additional 911 Trunks for Interconnection with AT&T-21STATE.
- 4.2.11 CLEC is responsible for the isolation, coordination and restoration of all 911 facility and trunking maintenance problems from CLEC's demarcation (for example, collocation) to the AT&T-21STATE E911 SR(s). CLEC is responsible for advising AT&T-21STATE of the 911 Trunk identification and the fact that the trunks are dedicated for 911 traffic when notifying AT&T-21STATE of a failure or outage. The Parties

agree to work cooperatively and expeditiously to resolve any 911 outage. AT&T-21STATE will refer network trouble to CLEC if no defect is found in AT&T-21STATE's 911 network. The Parties agree that 911 network problem resolution will be managed expeditiously at all times.

4.2.12 CLEC will not turn up live traffic until successful testing of E911 Trunks is completed by both Parties.

4.2.13 Where required, CLEC will comply with Commission directives regarding 911 facility and/or 911 Trunking requirements.

#### 4.3 Database:

4.3.1 Once the 911 Interconnection between CLEC and all appropriate AT&T-21STATE E911 SR(s) has been established and tested, CLEC or its representatives shall be responsible for providing CLEC's End User 911 Records to AT&T-21STATE for inclusion in AT&T-21STATE's DBMS on a timely basis.

4.3.2 CLEC or its agent shall provide initial and ongoing updates of CLEC's End User 911 Records that are Master Street Address Guide (MSAG) valid in electronic format based upon established NENA standards.

4.3.3 CLEC shall adopt use of a Company/NENA ID on all CLEC End User 911 Records in accordance with NENA standards. The Company ID is used to identify the carrier of record in facility configurations.

4.3.4 CLEC is responsible for providing AT&T-21STATE updates to the E911 database; in addition, CLEC is responsible for correcting any errors that may occur during the entry of their data to the AT&T-21STATE 911 DBMS.

#### 5.0 Responsibilities of the Parties

5.1 For CLEC's own switch(es), both Parties shall jointly coordinate the provisioning of transport capacity sufficient to route originating E911 calls from CLEC's POI to the designated AT&T-21STATE E911 SR(s).

5.1.1 AT&T-21STATE and CLEC will cooperate to promptly test all trunks and facilities between CLEC's network and the AT&T-21STATE E911 SR(s).

#### 5.2 911 Surcharge Remittance to PSAP:

5.2.1 For CLEC's own switch(es), the Parties agree that:

5.2.1.1 AT&T-21STATE is not responsible for collecting and remitting applicable 911 surcharges or fees directly to municipalities or government entities where such surcharges or fees are assessed by said municipality or government entity, and

5.2.1.2 AT&T-21STATE is not responsible for providing the 911 Customer detailed monthly listings of the actual number of access lines, or breakdowns between the types of access lines (e.g., residential, business, payphone, Centrex, PBX, and exempt lines).

5.2.1.3 Facility based CLECs shall be responsible for collecting and remitting all applicable 911 fees and surcharges on a per line basis to the appropriate PSAP or other governmental authority responsible for collection of such fees and surcharges.

5.2.2 For Resellers, the ILEC shall serve as a clearinghouse between Resellers and PSAPs except where state law requires Reseller to collect and remit directly to the appropriate 911 Authority. The Parties agree that:

5.2.2.1 AT&T-12STATE shall include Reseller information when providing the 911 Customer with detailed monthly listings of the actual number of access lines, or breakdowns between the types of access lines (e.g., residential, business, payphone, Centrex, PBX, and exempt lines).

5.2.2.2 AT&T SOUTHEAST REGION 9-STATE will provide the 911 Customer a monthly settlement letter which provides the total number of access lines broken down into residence and business line totals only. If state statutes require a break out of Reseller information, the

AT&T SOUTHEAST REGION 9-STATE shall include this information upon request by the 911 Customer.

## 6.0 Methods and Practices

6.1 With respect to all matters covered by this Attachment, each Party will comply with all of the following to the extent that they apply to access to 911 and E911 Databases: (i) all FCC and applicable Commission rules and regulations, (ii) any requirements imposed by any Governmental Authority other than a Commission, (iii) the terms and conditions of AT&T-21STATE's Commission-ordered tariff(s) and (iv) the principles expressed in the recommended standards published by NENA.

## 7.0 Contingency

7.1 The terms and conditions of this Attachment represent a negotiated plan for providing access to 911 and E911 Databases, and providing interconnection and call routing for purposes of 911 call completion to a PSAP as required by Section 251 of the Act.

7.2 The Parties agree that the 911 System as provided herein is for the use of the E911 Customer, and recognize the authority of the E911 Customer to establish service specifications and grant final approval (or denial) of service configurations offered by AT&T-21STATE and CLEC.

7.2.1 In AT&T TEXAS only:

7.2.1.1 These specifications shall be documented in Exhibit I, CLEC Serving Area Description and E911 Interconnection Details. CLEC shall complete its portion of Exhibit I and submit it to AT&T TEXAS not later than forty-five (45) Business Days prior to the passing of live traffic. AT&T TEXAS shall complete its portion of Exhibit I and return Exhibit I to CLEC not later than thirty (30) Business Days prior to the passing of live traffic.

7.2.1.2 CLEC must obtain documentation of the approval of the completed Exhibit I from the appropriate E911 Customer(s) that have jurisdiction in the area(s) in which CLEC's End Users are located. CLEC shall provide documentation of all requisite approval(s) to AT&T TEXAS prior to use of CLEC's E911 connection for actual emergency calls.

7.2.1.3 Each Party will designate a representative who has the authority to complete additional Exhibit(s) I to this Attachment when necessary to accommodate expansion of the geographic area of CLEC into the jurisdiction of additional PSAP(s) or to increase the number of 911 Trunks. CLEC must obtain approval of each additional Exhibit I, as set forth in Section 7.2 above, and shall furnish documentation of all requisite approval(s) of each additional Exhibit I in accordance with Section 7.2 above.

## 8.0 Basis of Compensation

8.1 Rates for access to 911 and E911 Databases, Interconnection and call routing of E911 call completion to a PSAP as required by Section 251 of the Act are set forth in the Pricing Schedule or applicable AT&T-21STATE Commission-approved access tariff.

## APPENDIX – 911/E911 ILEC

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### 1.0 Introduction

- 1.1 This Attachment sets forth terms and conditions for 911 Service Access provided by the applicable AT&T-21STATE owned Incumbent Local Exchange Carrier (ILEC) to WSPs for access to the applicable AT&T-21STATE-owned ILEC's 911 and E911 Databases, and Interconnection to an AT&T-21STATE-owned ILEC's 911 Selective Router for the purpose of Call Routing of 911 calls completion to a Public Safety Answering Point (PSAP) as required by Section 251 of the Act.
- 1.2 Wireless E911 Service Access is a service which enables WSP's use of AT&T-21STATE 911 network service elements which AT&T-21STATE uses in the provision of E911 Universal Emergency Number/ 911 Telecommunications Services, where AT&T-21STATE is the 911 service provider. E911 Authority purchases Universal Emergency Number/911 Telecommunications Service from AT&T-21STATE. Wireless E911 Service Access makes available to WSP only the service configuration purchased by the E911 Authority from AT&T-21STATE. AT&T-21STATE shall provide Wireless E911 Service Access to WSP as described in this Attachment, in each area in which (i) WSP is authorized to provide CMRS and (ii) AT&T-21STATE is the 911 service provider. The Federal Communications Commission has, in FCC Docket 94-102, ordered that providers of CMRS make available to their end users certain

E9-1-1 services, and has established clear and certain deadlines and by which said service must be available. Wireless E911 Service Access is compatible with WSP's Phase I and Phase II E911 obligations.

## 2.0 Definitions

- 2.1 "911 System" means the set of network, database and customer premise equipment (CPE) components required to provide 911 service.
- 2.2 "911 Call(s)" means a call made by an WSP's Wireless End User by dialing "911" (and, as necessary, pressing the "Send" or analogous transmitting button) on a Wireless Handset.
- 2.3 "Automatic Location Identification" or "ALI" means the necessary location data stored in the 911 Selective Routing/ALI Database, which is sufficient to identify the tower and/or face from which a wireless call originates.
- 2.4 "Automatic Location Identification Database" or "ALI Database" means the emergency service (E911) database containing caller information. Caller information may include, but is not limited to, the WSP name, Call Back Number, and Cell Site/Sector Information.
- 2.5 "Automatic Number Identification" or "ANI" means a signaling parameter that refers to the number transmitted through a network identifying a pANI. With respect to 911 and E911, "ANI" means a feature by which the pANI is automatically forwarded to the 911 Selective Routing Switch and to the PSAP's Customer Premise Equipment (CPE) for display.
- 2.6 "Call Back Number" means the Mobile Identification Number (MIN) or Mobile Directory Number (MDN), whichever is applicable, of a WSP's Wireless End User who has made a 911 Call, which may be used by the PSAP to call back the WSP's Wireless End User if a 911 Call is disconnected, to the extent that it is a valid, dialable number.
- 2.7 "Call Path Associated Signaling" or "CAS" means a wireless 9-1-1 solution set that utilizes the voice transmission path to also deliver the Mobile Directory Number (MDN) and the caller's location to the PSAP.
- 2.8 "Centralized Automatic Message Accounting (CAMA) Trunk" means a trunk that uses Multi-Frequency (MF) signaling to transmit calls from the WSP's switch to an AT&T-21STATE E911 Selective Router.
- 2.9 "Cell Sector" means a geographic area defined by WSP (according to WSP's own radio frequency coverage data), and consisting of a certain portion or all of the total coverage area of a Cell Site.
- 2.10 "Cell Sector Identifier" means the unique alpha or alpha-numeric designation given to a Cell Sector that identifies that Cell Sector.
- 2.11 "Cell Site/Sector Information" means information that indicates to the receiver of the information the Cell Site location receiving a 911 Call made by a WSP's Wireless End User, and which may also include additional information regarding a Cell Sector.
- 2.12 "Common Channel Signaling/Signaling System 7 Trunk" or "CCS/SS7 Trunk or SS7 Signaling" means a trunk that uses Integrated Services Digital Network User Part (ISUP) signaling to transmit ANI from WSP's switch to an AT&T-21STATE 911 Selective Routing Tandem.
- 2.13 "Database Management System" or "DBMS" means a system of manual procedures and computer programs used to create, store and update the data required to provide Selective Routing and/or ALI for 911 systems.
- 2.14 "E911 Authority" means a municipality or other State or Local government unit, or an authorized agent of one or more municipalities or other State or Local government units to whom authority has been lawfully designated as the administrative entity to manage a public emergency telephone system for emergency police, fire, and emergency medical services through the use of one telephone number, 911.
- 2.15 "E911 Service" means the functionality to route wireless 911 calls and the associated caller and/or location data of the wireless end user to the appropriate Public Safety Answering Point.
- 2.16 "E911 Trunk" means one-way terminating circuits which provide a trunk-side connection between WSP's MSC and AT&T-21STATE 911 Tandem equipped to provide access to 911 services as technically defined in Telcordia Technical Reference GR145-CORE.
- 2.17 "E911 Universal Emergency Number Service" (also referred to as "Expanded 911 Service" or "Enhanced 911 Service") or "E911 Service" means a telephone exchange communications service whereby a PSAP answers telephone calls placed by dialing the number 911. E911 includes the service provided by the lines and equipment associated with the

service arrangement for the answering, transferring, and dispatching of public emergency telephone calls dialed to 911. E911 provides completion of a call to 911 via dedicated trunks and includes ANI, ALI, and/or Selective Routing.

- 2.18 "Emergency Service Number" or "ESN" is a three to five digit number representing a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, or Emergency Service Zone (ESZ). The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper service agency(ies).
- 2.19 "Emergency Services" means police, fire, ambulance, rescue, and medical services.
- 2.20 "Emergency Service Routing Digits" or "ESRD" is a digit string that uniquely identifies a base station, Cell Site, or sector that may be used to route emergency calls through the network in other than an NCAS environment.
- 2.21 "Emergency Service Routing Key" or "ESRK" is a 10 digit routable, but not necessarily dialable, number that is used not only for routing but also as a correlator, or key, for the mating of data that is provided to the PSAP (a.k.a. 911 Center) by different paths, such as via the voice path and ALI data path in an NCAS environment.
- 2.22 "End User", for purposes of this Attachment only, means the 911 caller.
- 2.23 "Hybrid CAS" means a wireless 911 solution set that utilizes one transmission path to deliver the voice and Mobile Directory Number (MDN) to the PSAP and a separate transmission path to deliver the callers location information to the PSAP.
- 2.24 "Meet Point" means the demarcation between the AT&T-21STATE network and the WSP network.
- 2.25 "Mobile Directory Number" or "MDN" means a 10-digit dialable directory number used to call a Wireless Handset.
- 2.26 "Mobile Identification Number" or "MIN" means a 10-digit number assigned to and stored in a Wireless Handset.
- 2.27 "NENA Company Identifier" or "NENA ID" means the three to five (3 to 5) character identifier obtained by the Customer from the National Emergency Number Association (NENA), 4350 N. Fairfax Drive, Suite 750, Arlington, VA 22203-1695. The NENA company ID allows the PSAP to identify the switching carrier for the caller, and to determine the 24 x 7 number of the Company for emergency contact needs.
- 2.28 "Non-Call path Associated Signaling" or "NCAS" means a wireless 9-1-1 solution set that utilizes one transmission path to deliver the voice and a separate transmission path to deliver the Mobile Directory Number and the caller's location to the PSAP.
- 2.29 "Phase I" - as defined in CC Docket 94-102. Phase I data includes the Call Back Number and the associated 911 ALI.
- 2.30 "Phase II" - as defined in CC Docket 94-102. Phase II data includes XY coordinates, confidence factor and certainty.
- 2.31 "Public Safety Answering Point" or "PSAP" means an answering location for 911 calls originating in a given area. The E911 Authority may designate a PSAP as primary or secondary, which refers to the order in which calls are directed for answering. Primary PSAPs answer calls; secondary PSAPs receive calls on a transfer basis. PSAPs are public safety agencies such as police, fire, emergency medical, etc., or a common bureau serving a group of such entities.
- 2.32 "Pseudo Automatic Number Identification (pANI)" is a 10-digit telephone number used to support routing of wireless 911 calls. It is used to identify the Cell Site and/or cell sector from which the call originates, and is used to link the ALI record with the caller's MDN.
- 2.33 "Selective Routing" means the routing of a 911 call to the proper PSAP based upon the location of the caller. Selective Routing is controlled by the ESN which is derived from the customer location.
- 2.34 "Service Provider" means an entity that provides one or more of the following 911 elements; network, database, or CPE.
- 2.35 "Shell Record" means a partial ALI record which requires a dynamic update of the ESRK, Call Back Number, Cell Site and Sector Information for a Phase I deployment, and XY location data for a Phase II deployment. The dynamic update requires input from the WSP's network prior to updating the ALI record and forwarding to the appropriate PSAP.
- 2.36 "Wireless Handset" means the wireless equipment used by a wireless end user to originate wireless calls or to receive wireless calls.

### 3.0 AT&T-21STATE Responsibilities

- 3.1 AT&T-21STATE shall provide and maintain such equipment at the E911 SR and the DBMS as is necessary to perform the E911 Services set forth herein when AT&T-21STATE is the 911 service provider. AT&T-21STATE shall provide

911 Service to WSP in areas where WSP is licensed to provide service and AT&T-21STATE provides the 911 System component. In such situations, AT&T-21STATE shall provide WSP access to the AT&T-21STATE 911 System as described in this section.

### 3.2 Call Routing

- 3.2.1 AT&T-21STATE will route 911 calls from the AT&T-21STATE SR to the designated Primary PSAP according to routing criteria specified by the PSAP.
- 3.2.2 When routing a 911 call and where AT&T-21STATE is the ALI Database Provider, in a Phase I application, AT&T-21STATE will forward the Phase I data as provided by the WSP and in a Phase II application, where Phase II service has been initiated by the PSAP, AT&T-21STATE will forward the Phase I and Phase II data as provided by the WSP.

### 3.3 Facilities and Trunking

- 3.3.1 AT&T-21STATE shall provide and maintain sufficient dedicated E911 trunks from AT&T-21STATE's SR's to the PSAP of the E911 Authority, according to provisions of the applicable State Commission approved tariff and documented specifications of the E911 Authority.
- 3.3.2 After receiving WSP's order, AT&T-21STATE will provide, and WSP agrees to pay for, transport facilities required for 911 trunk termination. Except as provided in Section 8.1, transport facilities shall be governed by

the applicable AT&T-21STATE tariff within the serving state. Additionally, when WSP requests diverse facilities, AT&T-21STATE will provide such diversity where technically feasible, at standard tariff rates.

- 3.3.3 AT&T-21STATE and WSP will cooperate to promptly test all Trunks and Facilities between WSP's network and the AT&T-21STATE SR(s).
- 3.3.4 AT&T-21STATE will be responsible for the coordination and restoration of all 911 network maintenance problems to WSP's facility Meet Point.

#### 3.4 Database

- 3.4.1 Where AT&T-21STATE manages the 911 and E911 Databases and WSP deploys a CAS or Hybrid-CAS Solution, and also NCAS in AT&T-21STATE, utilizing AT&T-21STATE E911 DBMS:
  - 3.4.1.1 AT&T-21STATE shall store the WSP's Shell records in the electronic data processing database for the E911 DBMS.
  - 3.4.1.2 AT&T-21STATE shall coordinate access to the AT&T-21STATE E911 DBMS for the initial loading and updating of the WSP's records.
  - 3.4.1.3 AT&T-21STATE's ALI database shall accept electronically transmitted files that are based upon NENA standards.
  - 3.4.1.4 WSP's designated third-party provider may perform the above database functions.
- 3.4.2 In AT&T-12STATE where AT&T-12STATE manages the 911 and E911 Databases, and WSP deploys an NCAS solution:
  - 3.4.2.1 AT&T-12STATE will provide a copy of the static MSAG received from the appropriate E911 Authority, to be utilized for the development of Shell ALI Records.

### 4.0 WSP Responsibilities

#### 4.1 Call Routing

- 4.1.1 Where AT&T-21STATE is the 911 System Service Provider, WSP will route 911 calls from WSP's MSC to the AT&T-21STATE SR office of the 911 system.
- 4.1.2 Depending upon the network service configuration, WSP will forward the ESRD and the MDN of the party calling 911 or the ESRK associated with the specific Cell Site and sector to the AT&T-21STATE 911 SR.

#### 4.2 Facilities and Trunking

- 4.2.1 Where specified by the E911 Authority or PSAP, WSP shall provide or order from AT&T-21STATE transport and trunk termination to each AT&T-21STATE 911 SR that serves the areas in which WSP is licensed to and will provide CMRS service.
- 4.2.2 WSP shall be responsible for determining and maintaining facility transport capacity sufficient to route 911 traffic over trunks dedicated for 911 interconnection between the WSP's MSC and the AT&T-21STATE SR.
- 4.2.3 WSP acknowledges that its End Users in a single local calling scope may be served by different SRs and WSP shall be responsible for providing facilities to route 911 calls from its End Users to the proper E911 SR.
- 4.2.4 WSP shall order a minimum of two (2) one-way outgoing trunk(s) dedicated for originating 911 Emergency Service calls from the WSP's MSC to each AT&T-21STATE 911 SR, where applicable. Where SS7 connectivity is available and required by the applicable PSAP, the Parties agree to implement CCS/SS7 trunks rather than CAMA (MF) trunks.
- 4.2.5 WSP is responsible for appropriate diverse facilities if required by applicable State Commission rules and regulations or if required by other governmental, municipal, or regulatory authority with jurisdiction over 911 services.
- 4.2.6 WSP shall engineer its 911 trunks to maintain a minimum P.01 grade of service as specified by NENA standards.
- 4.2.7 In order to implement E911 Service, WSP or its agent is responsible for ordering the appropriate data circuit as specified by AT&T-21STATE technical reference located on the appropriate AT&T CLEC Online website, from WSP's MSC to the appropriate AT&T-21STATE ALI server where AT&T-21STATE is the designated ALI

Database Provider. Such data circuit may be ordered from AT&T-21STATE affiliate or vendor of WSP's choice.

- 4.2.8 WSP shall monitor its 911 circuits for the purpose of determining originating network traffic volumes. If WSP's traffic study indicates that additional circuits are needed to meet the current level of 911 call volumes, WSP shall request additional circuits from AT&T-21STATE.
- 4.2.9 WSP will cooperate with AT&T-21STATE to promptly test all 911 trunks and facilities between WSP's network and the AT&T-21STATE 911 Selective Router(s) to assure proper functioning of 911 service. WSP agrees that it will not pass live 911 traffic until both Parties complete successful testing.
- 4.2.10 WSP is responsible for the isolation, coordination and restoration of all 911 network maintenance problems to WSP's facility point of interconnection (POI). WSP is responsible for advising AT&T-21STATE of the circuit identification and the fact that the circuit is a 911 circuit when notifying AT&T-21STATE of a failure or outage. The Parties agree to work cooperatively and expeditiously to resolve any 911 outage. AT&T-21STATE will refer network trouble to WSP if no defect is found in AT&T-21STATE's 911 network. The Parties agree that 911 network problem resolution will be managed expeditiously at all times.

#### 4.3 Database

- 4.3.1 Where AT&T-21STATE is the 911 System Service Provider, and WSP deploys a CAS or Hybrid CAS Solution utilizing AT&T-21STATE 911 DBMS:
  - 4.3.1.1 WSP or its agent shall be responsible for providing WSP's Shell Records, and all associated records (i.e. NPA NXX table form and MPC Cross Reference form) to AT&T-21STATE or AT&T-21STATE's designated agent, for inclusion in AT&T-21STATE's DBMS, Selective Router and MPC Cross Reference tables on a timely basis in an electronic format based upon established NENA standards and as directed in the Wireless E911 Carrier Guide (located on the AT&T-21STATE Prime Access website. WSP or its agent shall provide initial and ongoing updates of WSP's ALI records that are in electronic format based upon established NENA Standards.
  - 4.3.1.2 WSP shall adopt use of a Company ID on all WSP Shell Records in accordance with NENA standards. The Company ID is used to identify the WSP of record in facility configurations.
  - 4.3.1.3 WSP is responsible for providing updates to AT&T-21STATE 911 DBMS; in addition, WSP is responsible for correcting any errors that may occur during the entry of their data as reflected on the status and error report.

#### 4.4 Other

- 4.4.1 WSP is responsible for collecting from its End Users and remitting to the appropriate municipality or other governmental entity any applicable 911 surcharges assessed on the WSP and/or End Users by any municipality or other governmental entity within whose boundaries the WSP provides CMRS.
- 4.4.2 In the event that there is a valid E911 Phase II PSAP request, WSP shall notify AT&T-21STATE 911 Account Manager at least five (5) months prior to WSP's proposed Phase II implementation state.

### 5.0 Responsibilities Of Both Parties

- 5.1 The Parties shall jointly coordinate the provisioning of transport capacity sufficient to route originating 911 calls from the WSP's MSC to the designated AT&T-21STATE 911 Selective Router(s).

### 6.0 Methods and Practices

- 6.1 With respect to all matters covered by this Attachment, each Party will comply with all of the following to the extent that they apply to E911 Service: (i) all FCC and applicable State Commission rules and regulations, (ii) any requirements imposed by any Governmental Authority other than a Commission, (iii) the terms and conditions of AT&T-21STATE's applicable Commission ordered tariff(s) and (iv) the principles expressed in the recommended standards published by

NENA. AT&T-21STATE Wireless 911 Customer Guides are located on appropriate AT&T-21STATE Prime Access website.

## 7.0 Contingency

- 7.1 The terms and conditions of this Attachment represent a negotiated plan for providing access to 911 and E911 Databases, and Interconnection to an AT&T-21STATE-owned ILEC 911 Selective Router for the purpose of Call Routing of 911 calls completion to a Public Safety Answering Point (PSAP) as required by Section 251 of the Act.
- 7.2 The Parties agree that the E911 Service is provided for the use of the E911 Authority, and recognize the authority of the E911 Authority to establish service specifications and grant final approval (or denial) of service configurations offered by AT&T-21STATE and WSP.

## 8.0 Basis Of Compensation

- 8.1 WSP shall compensate AT&T-21STATE for the elements described in the Pricing Schedule at the rates set forth in the Pricing Schedule on a going forward basis. There shall be no true up or price adjustments for process charged for wireless 911 implementations accomplished via prior agreement or tariff prior to the effective date of this Attachment. Rates for access to 911 and E911 Databases, Interconnection and call routing of E911 call completion to a Public Safety Answering Point (PSAP) as required by Section 251 of the Act are set forth in the Pricing Schedule or applicable AT&T-21STATE Commission-approved access tariff. In addition, the Parties acknowledge that the interim rates set forth in the Attachment are based on the pricing methodology set forth in the Letter from Thomas J. Sugrue, Chief Wireless Telecommunications Bureau, FCC to Marlys R. Davis, E-911 Program Manager, King County E-911 Program Office, dated May 7, 2001 ("King County Letter" and affirmed in The Order on Reconsideration In the matter of Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems Request of King County, Washington (FCC 02-146). In the event that the final pricing methodology that is adopted in a particular State differs from the King County Letter methodology, the Parties agree to true up or true down the rates charged and amounts paid back to September 1, 2002. Except as set forth above, in the event AT&T-21STATE files a new or revised tariff after the effective date of this Attachment ("New Tariff") containing rates for one or more of the elements described in the Pricing Schedule that vary from rates contained in a prior approved tariff or the rates specified in the Pricing Schedule, or if such New Tariff contains additional or different elements, when the rates or elements in the New Tariff become effective, such rates or elements shall apply to the corresponding elements on a going forward basis from the date the rates in the New Tariff become effective. Finally, the failure of the Pricing Schedule to list charges for the data circuit does not negate any such charges for the data circuit, should WSP elect to purchase such data circuit from an AT&T-21STATE affiliate.
- 8.2 Charges for E911 Service shall begin once the Trunks and Facilities are installed and successfully tested between WSP's network and AT&T-21STATE SR(s) and have been accepted by the WSP.

## 9.0 Mutuality

- 9.1 WSP agrees that to the extent it offers the type of services covered by this Attachment to any company, that should AT&T-21STATE request such services, WSP will provide such services to AT&T-21STATE under terms and conditions comparable to the terms and conditions contained in this Attachment.



# ATT-TP-76450

## Common Systems Equipment Interconnection Standards for AT&T Network Equipment Spaces

### Abstract

Presented in this document are the Common Systems Equipment Interconnection Standards for equipment placement and interconnection in the ATT Network Equipment Spaces. Users of this document should note that requirements and information contained within may only be excerpts of full requirements necessary for an acceptable installation of network equipment in a ATT facility. Users must refer to reference document for detailed requirements.

**Target Audience:** The primary audience for this document is telecommunications equipment manufacturers. This document will also be used in the PDF process associated with Requests for Information (RFI), Requests for Price (RFP) and Requests for Quote (RFQ) for equipment placed into the ATT Local Exchange Companies and AT&T Corporation networks.

**Effective Date:** June 2013

**Issue Date:**

**Expires On:** N/A

**Related Documents:** See Reference Section of this document.

**Canceled/Superseded Doc:** N/A

**Issuing Dept:** ATT Services, Inc., Network Planning & Engineering (Common Systems & Transport)

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## GENERAL

### 1.1 Requirements

This document provides the requirements for interconnection of new equipment in the AT&T **Network Equipment Spaces**. The appendices include the ATT equipment evaluation process to be used to verify compliance to these requirements.

### 1.2 Purpose

AT&T's networks are designed around fundamental standards for the purposes of meeting interconnection, safety, and industry standards. New equipment is required to integrate into the network seamlessly (fit, form and finish), without the impact or cost pressure to compensate for the product introduction.

The purpose of this section is to provide equipment suppliers with an overview of the AT&T network interconnection requirements most commonly encountered as non-compliant with new equipment and a process for relaying information about compliance to these requirements. This document is not intended to be a comprehensive list of all AT&T interconnection requirements. A product's compliance with the requirements and objectives of this section will not be the sole basis for the acceptance of the product, however noncompliance with one or more of the requirements or objectives of this section may be the basis for a product's denial of purchase.

### 1.3 Scope

Unless otherwise stated, the requirements contained herein apply to equipment systems and assemblies intended for installation in network equipment buildings, equipment areas within buildings, electronic equipment enclosures such as controlled environmental vaults, outside electronic equipment cabinets, and customer locations.

### 1.4 Pre-assembled versus Field Assembled Network Equipment

Network Equipment layouts provided as overall solutions need to be reviewed in one of two ways regarding the applicability of Common Systems components and products. For the purposes of this document, AT&T Network Carriers are only concerned with the connectivity and interconnection issues between the OEM equipment and the AT&T network facilities. OEM design practices internal to the Network Equipment hardware are not reviewed under this documentation.

OEM connectors and external contact points will meet the requirements contained in this document for performance, reliability and suitability. The use of a "Plug & Play" system using internal self contained Network Elements must also meet AT&T standards contained in TP 76200.

If the product uses various components that are interconnected together, this document will be applicable for interconnection between the various external components and cabling in addition to stand-alone Common Systems components that may have been standardized with other products within the AT&T Network Carrier companies. If the OEM has presented a solution that uses “off the shelf” separate components that are externally cabled within the bay or relay rack, validation and use of the AT&T standard product lines shall be given.

Example: All DSX-1, DSX-3 and FDF panels will be provided by ADC Telecommunications Inc. for the AT&T Network.

Finally, determinations will need to be made with AT&T Network Carrier company’s technical staff as to whether the items provided within the product meet either pre-assembled requirements or will be field assembled. Pre-assembled products will be considered within any Network Equipment/Element hardware box or panel that includes intelligent hardware or software. The assembly of multiple pre-assembled Network Equipment/Element products within the same footprint will be negotiated with the AT&T Network Carrier companies. The assembly of multiple pre-assembled Network Equipment/Element products outside of the same footprint will be handled as a field assembled installation. Any Network Equipment/Element that uses a passive product panel or box that does not include intelligent hardware or software will meet AT&T Network Carrier product approval standards and will be field assembled.

All assemblies, including internal wiring between components shall meet workmanship standards that include a neat and well-secured assembly with no sharp edges or cable/wire ends exposed.

## **1.5 ATT-TP-76450 Internet Web Site**

Copies of this document and general information about AT&T’s environmental equipment standards may be found at <https://ebiznet.att.com/sbcnebs/>.

## **1.6 Product Evaluation Process**

ATT-TP 76450 Product Evaluation Process is documented in Appendix A of this document. Equipment manufacturers should follow this process for each new Network Element under review by AT&T Network Carriers.

## **1.7 Additional AT&T Requirements**

The following is for notification purposes only. Refer to the directions given to obtain further information on these subjects. Verification of conformance to these standards is not part of the evaluation process for this section.

- ATT-TP-76200, Network Equipment Power, Grounding, Environmental, and Physical Design Requirements
- ATT-TP 76300, AT&T Installation Requirements

- ATT-TP 76400, AT&T Design Engineering Requirements

### **1.8 Adherence to AT&T Standard Suppliers**

Within the Common Systems Checklist, standard corporate providers of the product are listed as applicable. Selections of this product are performed through AT&T Services Inc. NP&E on behalf of the entire AT&T Enterprise. Each approved provider shall be used using AT&T approved PIDs, distributors and pricing.

### **1.9 Reasons for Reissue**

The Reason for Reissue part of this section identifies the changes made to this document when it is revised.

1. Section 4
2. Section 5
3. Section 7
4. Appendix B, ATT-TP-76450 Checklist

## **2 DC / AC Power Interconnection Standards**

### **2.1 GENERAL**

#### **2.1.1 Nominal -48v DC**

Nominal –48V DC is the standard platform for power delivery to all network equipment. If manufacturer's network equipment uses other than -48V DC, it shall be provided with internal inverters and converters to meet the intent of this requirement. The design criterion of the nominal -48V DC power is based on a normal operating voltage between -50V to -56.7 V DC, with nominal rating of -48v DC and low voltage of -40v DC measured at the input terminals of the network equipment.

#### **2.1.2 AC Powered Equipment**

Equipment shall preferably be DC powered. Equipment that requires AC power shall be located in a room with one hour fire walls separated from DC powered equipment and be powered by an inverter on the -48V DC power system. If the AC powered equipment cannot be placed in a one hour fire rated area, it will require NEBS Level 1 compliance. The proposed use of inverter fed AC powered equipment shall be reviewed by GES Common Systems on a case-by-case basis and will only be approved when a comparable DC version of the equipment is not made by the manufacturer or is not otherwise available.

### **2.2 DC Power Cabling**

#### **2.2.1 Redundant Power Feeds**

Redundant power feeders are required for all network equipment. Each element/shelf/circuit pack, whichever is the smallest independent load device of the equipment, shall obtain power from at least two power feeds.

#### **2.2.2 Power Feeder Information**

Redundant power feeder information must be provided in the supplier's response documentation to be in compliance with this item. Power feeds (supply and return ) provided by manufacturer's shop wired configurations shall be paired and closely coupled.

#### **2.2.3 Battery Return Conductor**

Each power feeder shall have its own battery return conductor. This design concept shall also carry through directly to each piece of equipment.

#### **2.2.4 Battery Return Configuration DC-I**

Equipment battery return configuration shall be DC-I. Equipment configured with the battery return and chassis ground bonded together (DC-C) shall not be deployed in the network. The DC-C configuration cannot be utilized with dual plant operation.

### 2.2.5 Diverse Cable Routing

Equipment shall be designed to accept diverse power cable routing with inputs on each side of the equipment.

### 2.2.6 List Drain Information

Battery return and current path information must be provided in the supplier's response documentation to be in compliance with this item. List 1, 1X, 2 and 2X drains shall be provided in the ATT-TP76200 ESP Forms documentation.

#### Drain Definitions

Defined below are the four drain categories used in this document.

- **List 1 Drain:**  
This represents the average busy-hour current required at normal operating voltages at operating conditions as provided by the equipment manufacturer. List 1 current drains are used to size batteries and rectifiers. The cumulative List 1 current drain is the current consumed on both the A and B supplies.
- **List 1X Drain**  
The current that will flow in one side of a dual powered circuit when the other supply circuit has failed and the power plant feeding the remaining circuit is at the normal operating voltage (float voltage).
- **List 2 Drain:**  
Representing the peak current required to operate equipment at  $-42.64$  v DC. This value is based on manufacturer-supplied data, and calculated to the AT&T minimum  $-42.64$  v DC engineering design level and equipment configuration.
- **List 2X Drain**  
The current that will flow in one side of a dual powered circuit if the other supply circuit is failed and the power plant feeding the remaining circuit is at  $42.64$  v DC, engineering design level, or the total power consumption of the network equipment in watts divided by  $42.64$  v DC.

### 2.3 Power Terminations at the Equipment

This section describes the various acceptable DC / AC power connectors and connections that are approved for use within AT&T. See Table 2-1 for DC classification of acceptable power connections based on cable termination.

#### 2.3.1 Rear Power Terminations

It is preferred that power terminations be located on the rear of the panel. All power connections shall be clearly labeled. DC power terminations shall be fully protected with a non-metallic, non-flammable cover.

### 2.3.2 Front Power Terminations.

Equipment designed as “front access only” (no rear access allowed) shall have the power terminations on the front of the equipment. All power leads entering the front or side shall be protected *from accidental bumps, pulls and hits*. All power connections shall be clearly labeled. DC power terminations shall be fully protected with a non-metallic, non-flammable cover.

## 2.4 DC Connectors

Connectors used to attach the product to external power cabling shall conform to the following requirements:

### 2.4.1 8 AWG and Larger Stranded Power Cable

Power input cable that will accept # 8 AWG or larger connector terminations shall use dual threaded post (stud) termination able to accept the appropriate two-hole crimp connection. The two post termination may be either 1',3/4", 5/8" or 1/2" on centers. **Refer to Table 2-1 for acceptable connectors.**

### 2.4.2 16 AWG to 10 AWG Stranded Power Cable

For applications where the size of wire supplying or distributing power to/from the equipment is 16 AWG to 10 AWG stranded power cable, pressure crimped ring type connectors shall be used on the power cable. **Refer to Table 2-1 for acceptable connectors.**

### 2.4.3 Equipment surface terminations shall accept crimp connections that meet the following specifications for 16 AWG and larger stranded power cable:

- UL486A Wire Connectors and Soldering Lugs for Use with Copper
- UL467 Grounding and Bonding Equipment Conductors
- UL 486C Splicing Wire Connectors
- SAE-AS25036 (Insulated Copper Ring Crimped Terminal - Dimensions)
- SAE-AS7928 (Copper Ring Crimped Terminal - Specifications)

Equipment submitted for approval should provide a UL listed (power) termination strip designed and designated as “field wireable” to insure product compliance with the UL listing of the product. This termination or barrier strip should be able to accommodate a ring lug connectors that comply with the UL, CSA and Mil Spec listings.

### 2.4.4 18 AWG Power Cable and Smaller

For applications where the size of wire supplying power to the equipment is 18 AWG power cable or smaller, mechanical connectors may be used. **Refer to Table 2-1 for acceptable connectors.**

**2.4.5 Connectors and Hardware**

**Refer to Table 2-1 for acceptable connectors.**

- The connectors shall be listed by a Nationally Recognized Test Laboratory for its intended use.
- The connector shall be tested to assure long-term tightness and reliability. The following tests are acceptable for this requirement; IEC 60068-2-6, Basic Environmental Test Procedures, Part 2: Test Fc and Guidance: Vibration (sinusoidal); EIA Specifications 364-27B (Mechanical Shock Test Procedure for Electrical Connectors), 364-28D (Vibration Test Procedure for Electrical Connectors and Sockets), Telcordia GR-63-CORE and Telcordia GR-1089-CORE. Other vibration test procedures demonstrating long-term reliability will be considered for evaluation.
- The product supplier shall provide documentation of routine maintenance (if any) associated with the supplied connector.
- Wago type pressure spring connectors, connectors that crush the wire with a screw and snap-on type power connections are not approved for use and will be denied compliance.
- Connecting hardware (bolts, nuts and washers) shall be Durium or silicon-bronze per ASTM B99. The Ny-Loc type nuts are not approved for use and will result in non-compliance.

**Table 2 – 1**

	<b>Acceptable termination</b>	<b>Associated Listings</b>
22 AWG – 18 AWG	Mechanical; American Standard UNC threads (Class 2 fit)	Listed by NRTL, IEC 60068-2-6, EIA SPEC 364-27B, 364-28D
16 AWG – 10 AWG	One or Two hole crimp connection. American Standard UNC threads (Class 2 fit)	UL467, UL486A, UL486C, SAE-AS25036, SAE-AS7928
8 AWG – 1AWG 1/0-4/0 250MCM – 750MCM	Two hole crimp connection. American Standard UNC threads (Class 2 fit)	UL467, UL486A, UL486C, SAE-AS25036, SAE-AS7928

**A “YES” for 2.4.5 indicates compliance to Table 2-1 and non-approved connectors are not being utilized.**

## 2.5 AC Connectors

AC power connectors shall be of a type to provide locking. This locking mechanism shall prevent the connection from being accidentally dislodged. Acceptable locking connectors are:

1. Twist lock
2. Having a locking guard that mounts to the chassis to prevent accidental dislodging

A “YES” indicates compliance to 2.5

## 2.6 DC Equipment Power Protection

### 2.6.1 Circuit Breakers / No Power Protection

If the shelf / system being evaluated does not utilize power protection, an approved bay mounted fuse panel (SPDU) shall be required. The panel shall utilize an approved Telcom or Telpower fuse type as listed on the AT&T DC Power Minor Material List. The use of circuit breakers or non-field replaceable fuses for shelf / system power protection is considered Non-Standard. Circuit breakers will be considered an “on – off” switch for the equipment with fused circuit protection required at the bay level. Equipment utilizing fuse protection that is not “field replaceable” will require a bay mounted fuse panel.

- Circuit Breakers - Only thermal magnetic and magnetic type DC circuit breakers are acceptable. Circuit breakers should adhere to all applicable UL and ANSI standards. DC Circuit breakers that are labeled 100% are full load rated and may be sized at the same capacity as the List 2X drain.

**A “YES” answer here indicates the equipment is utilizing circuit breakers or has no power protection or has fuses which are not “field replaceable” and requires a bay mounted fuse panel.**

AT&T approved fused Power Distribution Units (PDU) shall be used to provide power to transport and data equipment. Power is distributed to the equipment from Battery Distribution Fuse Bays (BDFB) or an arrangement utilizing a Secondary Power Distribution Unit (SPDU). The SPDU is smaller than a BDFB in physical size and capacity.

PDUs that are independent of the network element but, included as part of the total package must meet the requirements listed in this section; must be approved for use, and should be identified by an associated AT&T PID (Product ID) number assigned by the AT&T Power Technical Staff

**2.6.2 Is the equipment planned for placement in a switching environment?**

**A “YES” answer here will not require the use of fuses but circuit breakers are required for circuit power protection.**

**2.6.3 Is the equipment planned for placement in the transport environment?**

**A “Yes” answer here will require the use of fuses or a fuse panel to interface to the power plant.**

**2.6.4 Fuses**

Fuses are the preferred method of power protection. The equipment fuse shall be replaceable by the maintenance technician on site. If the shelf / system is protected by fuses rated at 120 amps or less, a bay mounted fuse panel is not required.

**A “YES” answer here confirms that the equipment is protected by fuses rated at 120 amps or less and are replaceable by the maintenance technician on site.**

Any equipment that requires more than a 70 amp fuse (56 amp load of List 2X) may necessitate modifications to the BDFB to accommodate a fuse larger than 70 amps. Individual equipment will not be directly fed from Power Board Distribution without the use of an SPDU or BDFB.

**2.6.5 Approved Fuse Types**

All fuses provided on the equipment and approved PDUs shall be equipped with at least one of these forms of overprotection devices, (1) GMT Fuses, (2) Telpower® Fuses, (3) Telecom TLS Fuses. The size of the DC requirement will serve as the primary qualifier. Only approved fuse types shall be utilized. The approved fuse types are GMT, TPA, TPN, TPS and TLS.

- GMT Fuses – Generally sized to accommodate 0.18 – 20 amp requirements. List 2X demand should not exceed 80% rated fuse size.
- Telpower® Fuses – as listed above - Exclusively produced by Cooper-Bussmann, these fuses are available in sizes from 3 amps to 600 amps, packaged in Blue to signify DC only. All Telpower® fuses should be sized at 125% of List 2X load (List 2X load not greater than 80% of their fuse faceplate rating).
- Telecom TLS Series Power Fuses – Exclusively manufactured by Littelfuse shall be used in the 3-125A sizes with the Canadian Shunt TFD101-011-01 fuse disconnect/fuse holder. Littelfuse TLS fuses should be sized at 125% of List 2X load (List 2X load not greater than 80% of their fuse faceplate rating).

**A “YES” answer here confirms that the equipment is protected by an approved fuse type rated at 120 amps or less.**

**2.6.6 All fuses and circuit breakers shall meet Quality Level III as defined by Telcordia SR-332.**

**2.7 Filtered Battery**

All equipment requiring "Filtered Battery" shall provide the filtering within the equipment. (Filtered DC power PDUs are not provided by AT&T to remove excessive levels of transient noise generated within the equipment).

**2.8 Special PDU**

Even though not recommended as a choice by AT&T, some equipment designed by various manufacturers require specific PDUs that are considered part of the system or equipment being evaluated which may include unique characteristics needed to serve their specific network device. These "special PDUs" must meet all the same design criteria identified in this document as well as the ATT-TP-76200 NEBS publication. If accepted, this "special PDU" would be listed as part of the equipment approval, purely as an integral part of the package and its approval is exclusive to the associated equipment. Furthermore, this "special PDU" should be reviewed by the Common Systems Technical Staff to insure its integrity.

**2.9 Integrated Power Distribution**

Defined as; power distribution that is integrated within the framework of the network element (e.g. #5 ESS PDF frame). Generally speaking, equipment requiring more than 200 amps of DC power needs this type of power distribution. The equipment is commonly found in large multiple interrelated-bays.

These type devices are considered equipment specific and should meet the requirements as listed in Section 1 of this document as well as the ATT-TP-76200 NEBS publication. Additionally, AT&T requires the use of fuses in lieu of breakers in these applications.

**2.10 Visual Power Alarms and Status Indicator**

The equipment shall provide visual power alarm and status indications by indicator devices mounted directly on the equipment and preferably at the top of the equipment bay. The equipment shall also be capable of transmitting alarm signals to an office alarm circuit and to sending circuits for remote surveillance using dry loop relay contacts or other means. Power alarm and status reporting information must be provided in the supplier's response documentation to be in compliance with this item.

If an alarm indicator pilot fuse is present in the power circuit, it should operate when the power fuse fails.

### **3 Synchronization/Timing Standards**

This section addresses the synchronization reference input of the device or system under consideration, if applicable. Synchronization is not covered in the GR's associated with NEBS. Synchronization and synchronization input reference interfaces are documented in Telcordia GR-1244-CORE and GR-499-CORE.

Issue 14 is a complete revision to section 3, Synchronization/Timing Standards. Network elements that were traditionally part of the outside plant and cellular base station environments are now coming under the AT&T TP-76450 interconnection review process. It is understood that some of these network elements are not designed to traditional wireline CO equipment standards. It is very helpful if the respondent submits a copy of the equipment supplier's documentation for any timing and synchronization requirements of the device under consideration. In addition, respondents are encouraged to contact the AT&T Common Systems synchronization SME to discuss the requirements and context of this section.

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Telephone 770-232-9183

The AT&T Common Systems synchronization SME acknowledges the variability and complexity of timing solutions that can be present with much of the equipment now being introduced into the network. Many new systems are based upon router and switch technology rather than traditional TDM and SONET technology. In addition, there is variability in the timing requirements based upon the actual deployment mode. It is difficult to capture all the possible variables in a checklist or questionnaire type document. The AT&T Common Systems synchronization SME welcomes suggestions for improvements to the contents of section 3.

The original purpose of this section is to determine if the device under consideration has a synchronization interface to accept external frequency timing references from the Building Integrated Timing Supply system (BITS), and if so, does the interface meet existing North American standards for interconnection and timing signal format. If there is a frequency timing input reference interface, but the interface is not compliant to AT&T standards, the respondent is asked to identify the proposed method for mitigating the non-compliant interface.

We now see systems that require some sort of timing or synchronization, but are not designed to interconnect directly to a traditional timing signal generator with a physical twisted pair of wires. This section now attempts to determine if some non-traditional synchronization solution, such as a dedicated GPS antenna and receiver, IEEE-1588v2 based Precision Time Protocol (PTP), or Network Time Protocol (NTP) will be employed. In the case of PTP and NTP solutions, the respondent is asked for details on timing precision requirements of the device under consideration.

For the purposes of this section, 'synchronous interfaces' shall include DS0 digital, T1, and SONET. E1 and SDH may be supported in some specific applications, but are not consistent with North American network standards. Synchronous Ethernet is not currently under

consideration as a means for synchronization transport in AT&T. The Device Under Consideration is referred to as the 'DUC'.

Note: If the DUC is a GR-2830-CORE compliant Primary Reference Source (PRS) or a GR-378-CORE compliant Timing Signal Generator (TSG), or a component of a PRS or TSG, enter N/A in checklist question 3.1.1 and note the system type in the remarks for question 3.1.1. No further responses are required for PRS and TSG systems.

### **3.1 Standards Compliant External Frequency Timing Requirements**

Devices that support synchronous interfaces require some sort of precision frequency timing reference for interoperability with other transport and switching interfaces. For devices located in a Central Office (CO) or a Mobile Telephone Switching Office (MTSO), the standard method for supplying a precision frequency timing reference is via connections to the Building Integrated Timing Supply system (BITS), which is an ensemble of a PRS or PRS traceable timing source, and a TSG. The BITS system is sometimes referred to as the 'BITS clock', or simply as the 'clock'.

Exceptions to BITS timing may occur if the DUC will be deployed in a manner that does not require external frequency timing from the BITS system. As an example, an Ethernet switch or a router may be deployed in one application that requires only Ethernet interfaces, and an external frequency timing source is not required. The same basic platform may also be deployed in other applications where synchronous interfaces such as DS1 or SONET are required, and external frequency timing is needed for synchronous interoperability with other elements in the network. Other exceptions may occur if the deployment proposes use of loop timing or line timing in lieu of BITS timing. The respondent may need to confer with the AT&T product deployment team to address the actual deployment proposed and the impact to DUC timing.

AT&T standards for external frequency timing signal formats are DS1 (SF (preferred) or ESF 1.544 mb/sec), and Composite Clock (64/8 kb/sec). See GR-1244-CORE and GR-499-CORE for detailed explanation of the signal formats. Other formats may be supported in very specific applications such as MTSO RAN or trans-oceanic cable heads.

AT&T requirements for external frequency timing input interfaces are based upon GR-1244 and are listed here:

- The DUC timing input interface consists of wire wrap pins (T/R/S) that are located on the back side of the DUC chassis.
- There are Primary and Secondary inputs for redundancy.
- The DUC chassis provides a resistive termination of 100 Ohms for DS1 clock, or 133 Ohms for Composite clock (+/- 5%) for each timing input circuit. The timing signal termination is present independent of the presence or absence of DUC removable modules.

### **3.2 Non-Standard Synchronization Requirements**

Some DUCs deployed in cellular base station applications, and some DUCs used for Radio Node Controller applications use DUC specific timing sources to supply precision frequency references, Time of Day references, and in some cases a geo-location reference. These timing sources are not compliant to North American standards for a PRS or TSG, and the interfaces typically are not compatible with connection to a BITS system. In some cases, a DUC specific GPS antenna and receiver system are required to support the DUC operation.

### **3.3 IEEE-1588v2 Precision Time Protocol**

Some DUCs deployed in the Outside Plant remote terminal access environment, and some DUCs deployed in cellular base station applications may use IEEE-1588v2 Precision Time Protocol (PTP) as a timing solution for sync over Ethernet. Next Generation TSGs are now available that can deliver PTP from Grand Master server modules housed in a TSG shelf in a CO or MTSO.

### **3.4 Network Time Protocol**

Network Time Protocol (NTP) has been in use for many years as a means to set time-of-day clocks in network equipment, computers, routers, etc. More recently, NTP has been used to deliver a frequency reference to U-verse set top boxes and some wireless base stations. Next Generation TSGs are now available that can deliver NTP from Stratum 1 server modules housed in a TSG shelf in a CO or MTSO. In some cases, these servers may be used to deliver NTP to a DUC.

## 4 Alarms

### Remote (Telemetry) Alarms:

4.1 All power and environmental related equipment (Network Elements – NE) deployed in an AT&T Transport or Equipment Location (TEL Site) or Non-TEL Site location must be capable of remote /telemetry surveillance for failed and threshold activities.

- Remote/telemetry surveillance - Involves providing Alarm, Status and Control (AS&C) capabilities for network equipment to a remotely located surveillance center. Remote surveillance interfaces are well-defined and supported in all AT&T regions.
- For possible remote/telemetry protocol types see table 4.1 below.

### Local Alarms:

4.2.1 Local alarms are required for all Power devices. At a minimum Power devices should provide Major and Minor alarms, intended for either audible and/or visual usage.

4.2.2 Local alarm are required for Environmental alarm sensors. Each sensor would produce a single alarm or threshold crossing intended for either audible and/or visual usage.

4.2.3 Beyond the requirements listed in sections 4.2.1 and 4.2.2 above, NEs are not required to provide local alarms. A power alarm or environmental sensor that is unique to a given NE is not required for local alarming. Local alarm indicators are not required beyond those located on the face of the device. Customer Premise locations are exempt from local and telemetry alarm requirements.

- Local surveillance - Involves the annunciation of equipment alarms via audible and/or visual alarm indications within the network equipment space.

### Separation of Local Alarms:

4.3 For those NEs required to provide local alarms, those local alarms are required to be provided by separate outputs from the remote alarms.

Footnote: The term "*Network Element*" is used within this document to refer to any and all equipment other than switching equipment deployed in an AT&T TEL Site or remote location. This would include, but is not limited to transport, conditioning, power and testing equipment as well as environmental and building operations sensors.

### Audible Alarm Cut-off (ACO):

( This section only applies in those cases where local alarms are required.)

- 4.4.1 For those NEs requiring local alarms, a local control button shall be provided for local office audible alarm cut-off (ACO) and shall be labeled "ACO".
- 4.4.2 If provided the ACO function shall simultaneously silence all active office audible alarm indications.
- 4.4.3 If provided the ACO function shall not inhibit office visual alarms, or subsequent audible indications due to additional failures.
- 4.4.4 If all previous alarms have been ACO'ed, and a new alarm becomes active, then the ACO condition shall be cleared and the highest severity audible alarm contact shall be activated.
- 4.4.5 An LED shall be associated with the ACO button to indicate the current status of the ACO. If active office audible alarm indications are cut-off due to execution of the ACO, the ACO LED shall be lit indicating that the alarm condition exists and that all active alarms of the system have been ACO'ed. The ACO LED stays extinguished if there are no active alarms when the ACO is executed. The ACO LED is extinguished when all active alarms clear, or when a new alarm is activated in the system, thus clearing the ACO condition. The color of the LED is most commonly amber but other colors are acceptable.
- 4.4.6 As an optional feature, equipment may provide capabilities to remotely activate the ACO function.

Telemetry Alarm Protocols:

- 4.5.1 Section 4.5 is included for **reference only**. Table 4.1 lists some of the possible protocols and their preferences.

Table 4-1

TL1 and/or SNMP using TCP-IP, X.25 or Async Transport	Most Preferred
Serial – TBOS, TABS, BACnet, Modbus, LonTalk, etc.,	Second Most Preferred: See 4.5.1 & 4.5.2 below
Discrete	Least Preferred

- 4.5.2 BACNet, Modbus & Lon Talk protocols are only used in special applications where local alarm collection products and element management systems are in place for their use. Manufacturers should verify the applicability of using these protocols in advance.

Footnote: A discrete telemetry interface may be provided, on an optional basis, in addition to higher level interfaces, to provide a summary of alarm and status information for remote surveillance.

Alarm Interconnection:

- 4.6.1 Each NE in a bay shall produce its own unique set of alarm outputs. Pre-designed "busing", "multiples", or "combining" of alarms or alarm leads within a bay is at the discretion of AT&T and shall not be mandated by the equipment design.

4.6.2 The interface for TL1/SNMP interconnection may be Ethernet RJ45, DB25 or RS422/449 (37 Pin).

4.6.3 The interface for E2A Serial or Discrete interconnections may be wire-wrap pins or other non-proprietary connector.

#### Discrete Alarm Conditions:

#### 4.7 Discrete Alarm Rating

4.7.1 Minimum current carrying capacity - steady state: 0.9 amps at 60 volts for -48 volt applications.

4.7.2 Minimum current (20 msec. duration) during initial contact closure: 0.9 amps at 60 volts for -48 volt applications.

#### Discrete alarm outputs:

4.8 All discrete alarm outputs shall be designed to provide normally open and normally closed alarm outputs. The use of Form-C relays may be used to provide the normally closed alarm outputs.

#### Discrete alarm paired leads

4.9 All discrete alarm outputs shall be paired leads (tip and ring) with no common or shared return leads.

#### Discrete alarm dry contacts:

4.10 All discrete alarm outputs shall be electro-mechanical (non-solid state) dry relay contacts without any type of constant voltage source or current flow present in a normal or failed state.

#### Housekeeping/Overhead Alarm Inputs:

4.11 All network elements that will be deployed in a Non-TEL Site environment, such as RT, CEV, Cabinet, etc., that are intended to carry local power and environmental alarms to a surveillance center must have at minimum sixteen (16) housekeeping/overhead user definable discrete alarm inputs. Although not required, an Ethernet/DCC access connection to the overhead for this purpose is strongly desired.

## 5 Fiber

All Fiber Optic Standards contained herein are applicable to any manufacturer's product that can be administered or managed by AT&T personnel. All references to SingleMode fiber shall be considered Bend Insensitive Fiber (BIF).

### 5.1 Fiber Optic Mode

Fiber Optic cards, transmitters and receivers shall be SingleMode.

### 5.2 Fiber Optic Cable

**Fiber Optic cables/jumpers/patch cords shall adhere to Telcordia Standards as defined in GR-409, *Generic Requirements for Premises Fiber Optic Cable* and GR-326, *Generic Requirements for Singlemode Optical Connectors and Jumper assemblies*.**

### 5.3 Optical Cable/Jumpers & Connectors

Fiber Cross Connect Cables/Jumpers and Connectors shall be SingleMode.

### 5.4 Fiber Attenuators

Attenuators shall be SingleMode.

### 5.5 Fiber Connector Boots

Fiber connector boots shall be straight and not angled.

### 5.6 Fiber Minimum Bend Radius

The minimum fiber bend radius shall be 1inch or 10 times the cable diameter at any point whichever is greater. Network equipment shall provide fiber management facilities that maintain a minimum 1 inch bend radius from the connector until handoff to the bay or cabinet fiber management facilities. **See Figure 5-1**

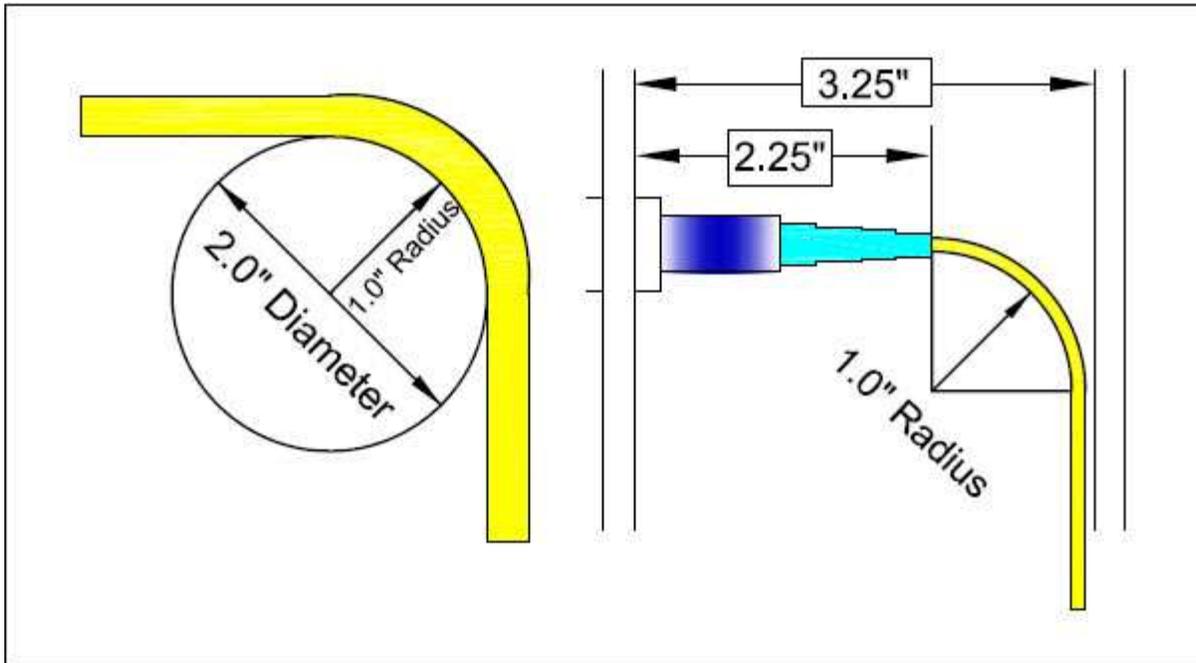
### 5.7 Maximum Fiber Connector length

The maximum fiber connector length (including boot) away from the mating connector housing shall not exceed 2.25 inches. **See Figure 5-1**

### 5.8 Minimum Distance Between Connector Housing and 90 Degree Bend

Minimum Fiber distance away from a connector housing to bend 90 degrees shall be 3.75-inches. **See Figure 5-1.**

## Figure 5-1



### 5.9 Space Between Door/Panel and Fiber Connector

To avoid pinching or reduction of minimum fiber bend radius the minimum distance between the fiber connector and any door/panel cover shall be a minimum of 3.75 inches.

See Figure 5-1

### 5.10 Standard Fiber Connector

The AT&T standard fiber connector shall be SC-UPC single mode or LC-UPC single mode type connector. Application of connector type shall be determined by equip design or manufacturer.

### 5.11 Alternative FTTP Fiber Connector

The AT&T alternative fiber connector for FTTP shall be SC-APC, SingleMode, 8-degree, keyed type connector.

### 5.12 Fiber Transmission Material

Fiber transmission material shall be glass, not plastic or any other material not specifically pre-approved by AT&T NP&E Staff.

### 5.13 Maximum optical power levels

Optical aggregate power level must not exceed +16.8 dBm optical power level at any connector (Hazard Level 3b). If the product exceeds this, there must be an embedded (to the network equipment) solution to protect the human exposure for both TXMT and RCV including the Automatic Power Reduction (APR) potential solutions.

#### **5.14 Fiber Frames/Bays & Panels for all Network Elements**

Fiber Frames/Bays & Panels for all Network Elements shall be Generation I, II, III Fiber Distribution Frames per GR-449-CORE.

#### **5.15 Fiber Raceway**

Fiber raceways shall be standard trough system for all Interbay fiber jumper routing per GR-449-CORE.

## **6 Copper**

### **6.1 DS3/STS-1 Connector & Cabling BNC Connector**

DS3/STS-1 connector standard & cabling BNC connector shall be standard DS3/STS-1 BNC(180, 90 & 45 degree) electrical coaxial connector (except Posilock 180, 90 & 45 degree)  
Note: Use Trompeter Electronics BNC for Midwest, ADC Telecommunications BNC for Southeast and Kings Electronics BNC for West, Southwest and East. For Legacy AT&T, use Trompeter Electronics BNC, ADC Telecommunications BNC and Kings Electronics BNC within the same regions previously cited, and use the existing BNC of choice in all other areas.

### **6.2 Alternative DSC/STS-1 Connector**

For Network Elements that require a unique connector DS3/STS-1 SMZ Electrical Coaxial Connector shall be used on the Network Element only.

### **6.3 Coaxial Stripping Tools and Coaxial Crimping Tools**

Coaxial Cable Stripping Tools and Coaxial Connector Crimping Tools shall be 734C/735C and shall be limited to those specific tools that each connector manufacturer approves for stripping and crimping.

### **6.4 DS1 Cross-Connect Wire**

DS1 Cross-Connect Wire (Violet/Red) shall be special high twist Wire to mitigate spectrum interference with DSL Wire (Violet/Blue).

### **6.5 DSL Cross-Connect Wire**

DSL Cross-Connect Wire (Violet/Blue) with Different turns than DS1(Violet/Red), used to mitigate spectrum interference.

### **6.6 Electrical Ethernet Cabling Standards**

Electrical Ethernet cabling shall be a minimum Category 5E using either RJ21X connectors or RJ45 connectors.

### **6.7 Electrical Jumper (Cross-Connect) Standards**

Jumpers for Electrical Ethernet cross-connects shall be a minimum Category 5E using RJ 45 connectors.

### **6.8 Data Patch Panels**

Data patch panels shall be Electrical (10Base T, 100Base T, 1000Base T) Ethernet Patch Panels and Skeleton Bays for both Network Element and Ethernet Distributing Frame (EDF) bays. These patch panels shall have a minimum Category 5E rating.

## **6.9 Media Converter**

Media converters shall be optical range extenders for the limited Electrical Ethernet signal.

## **6.10 Central Office Copper Wire and Cable Flammability Ratings**

Wire and Cable with UL Flammability Ratings of CMX and CMU must not be used within AT&T central offices as UL Flammability Ratings must be MP/CM(same floor), MPR/CMR(Riser-Between Floor) or MPP/CMP(Plenum Condition).

## **6.11 Central Office Copper Wire and Cable**

Frame Wire, DS1 Cross-Connect Wire, Switchboard Cable, Tie Cables and T1 Cable

## **6.12 Central Office Copper Coaxial Cable**

734C/1734C, 735C/1735C Single Conductor and Multiple Conductor Coaxial Cables

## **6.13 Central Office Copper "Bits" Synchronous Timing Cables**

1175A Red Jacketed Bits Timing Cable for all regions except Legacy AT&T, which will use gray jacketed 1175A.

## **6.14 Central Office Copper Wire and Cable Minimum Inside Bend Radius**

For Switchboard, Shielded and Twin Conductor Cable, 5X the Cable Diameter

## **6.15 Central Office Copper Coaxial Cable Minimum Inside Bend Radius**

For Non-Bundled 734 or 735 Type Coaxial Cable and for Bundled 734 Type Coaxial Cable, 7X the Cable/Bundle Diameter.

For Bundled 735 Type Coaxial Cable, 10X the Bundle Diameter.

## **6.16 Copper Cable Terminations**

Copper Cable Terminations must have both toe and heel screw terminations for permanent lockdown. If a 90 degree connector is used and blocks the screw, use a clamp to permanently terminate the connector.

## **6.17 Cable Trays**

Panels that use twisted pair jumper/cables less than 25 pair groups will be required to have a cable tray or rings. Do not place jumpers without a protection tray.

### **6.18 Tie Bar**

Panels that use cables of 25 pair and above shall have a tie bar affixed for tie wrapping. Do not place cables without a tie bar on panel backplanes.

### **6.19 Use of "Y" Cable**

If a "Y" cable is used, the junction must only fit in the vertical troughs, not Network Elements or horizontal troughs, except switch cutover work.

### **6.20 Unusual Cable Types**

Unusual wiring patterns, connectors and cable types need to be mitigated.

### **6.21 Protection of Cable and Jumpers**

Network Equipment interconnection cabling/jumpers shall be provisioned with protection.

## 7 Vendor Documentation

The term “documentation” as used in this section refers to vendor documentation as defined in GR-2914-CORE and GR-454-CORE.

Vendor documentation is an integral part of the network equipment and shall be validated/tested by the vendor before delivery to AT&T to insure its accuracy, comprehensibility, comprehensiveness and completeness as defined and measured by the following documents and guidelines. Critical or Major Documentation deficiencies (determined by AT&T) can delay equipment deployment until corrected by the vendor and approved by AT&T. The requirements contained in this section are supplemental to other documents that govern vendor documentation such as GR-454-CORE and GR-2914-CORE.

### 7.1 Softcopy Documentation

Documentation must be provided in both PDF and HTML format that is fully indexed and fully searchable. Documents should be available on either web-site or CD. (use Check-list to confirm source)

### 7.2 Craft Interface Instructions

Documents must provide step by step instructions for each procedure using Craft GUI, EMS GUI, and TL1 (preferred) or equivalent commands.

**Note:** Items 7.4 and 7.5 Extend the testing procedure in GR-2914-CORE 20.8 Test Method for Documentation Comprehension to include the complete “Installation Guide

### 7.3 Installation Guide: installation, provisioning, and testing of the network element

Vendor must test and validate that a new user can successfully install, provision, and test the network element by following the “Installation Guide”.

### 7.4 Installation Guide: Creation, provisioning, and testing of a multi-node ring or system

Vendor must test and validate that a new user can successfully create, provision, and test a multi-node ring or system by following the “Installation Guide”.

## 7.5 Alarm/Trouble Shooting Guide

Vendor must test and validate that a new user can use the Alarm or Trouble Shooting guide to successfully identify and clear alarms

## 7.6 Personnel Injury and Equipment Damage Warnings

Documentation must keep the user aware of personnel injury and equipment damage by using the appropriate warnings, dangers, or cautions preceding procedures and incorporating the appropriate steps within the procedures.

## 7.7 Reference Guide

Documentation must include a "Reference" guide that describes each component of the NE in detail

**Example:** Photographs or detailed drawings of the faceplates of each plug-in with a description of the LEDs in a normal state and in an alarm or other informational state, optical connection type, if applicable, power requirements , etc

## 7.8 Consistent Terminology throughout Documentation

Per GR-454-CORE, Section 2.4, terminology must remain consistent throughout all documentation for a platform.

**Example:** Maintenance Mode must remain Maintenance Mode and not vary to Maintenance Condition or Maintenance State

## 7.9 Consistent Terminology between Documentation and Platform.

Per GR-454-CORE, Section 2.4, terminology must be consistent between the documentation and the platform.

**Example:** If it is referred to as Maintenance Mode in the documentation it must be Maintenance Mode in the Craft and EMS GUIs.

## 7.10 Revision Numbering

Documentation shall be clearly marked on each page with Revision numbers to indicate when changes are made within the document.

## 7.11 Revision History

A revision history section shall be included to clearly indicate what and where changes are made within the document.

## 8 Other interconnection requirements

### 8.1 Equipment lighting

If NE includes integrated lighting system, the system shall meet the lighting and illumination requirements in ATT-TP-76400.

### 8.2 Test (Streaker) Cards

Network Transport Elements shall have test cards (e.g., streaker) to enable verification of the network element hardware and the continuity of cabling, through the backplane, to the point of termination such as DSX panels or frames.

The test card or cards **shall not**:

- require the shelf to be powered for such testing.
- interrupt existing service on any other slot.

The test card or cards **shall**:

- Provide metallic access to each backplane terminating conductor via an appropriate connector Bantam for DS1, including timing inputs, 440 for DS-3, STS-1 and E-3 Facilitate electrical signal insertion and transmission toward the drop; especially for DS1 or DS3 signals.
- Facilitate optical signal insertion and transmission for continuity checking of optical jumpers that would, when such active Plug-In were installed, interconnect rear terminated Plug-Ins utilizing shelf backplane(s) optical connectors/barrels using SC or LC connectors.

**Note:** Test Set connections on face of Plug-In shall conform to AT&T standard connectors.

### 8.3 MOBILITY BAR CODE LABEL STANDARDS

#### Introduction

Applying bar codes, as simple of a task as it may seem on the surface, can actually be somewhat complex due to variations in equipment. These differences prevent a strict set of rules from being applied across the board.

Below is a base set of 'common sense' guidelines to be followed by personnel responsible for applying bar codes on mobility core equipment. Adhering to these guidelines improves the consistency of where bar codes are applied and assists personnel performing the inventory scan of the installed equipment.

#### 8.3.1 Determining Bar Code Requirement

There are a few methods of determining that the unit requires a tag, meaning the equipment is serialized (bar coded and tracked).

- 1.) The PO in CATS indicates which items are serialized and which items are not.
- 2.) A parts query in CATS will give you serial tracking information.

- 3.) A query via Network Item Master (NWIM) or the SCM websites provides serial tracking details.
  - a. NWIM can be obtained from:  
[http://mobilitynwscm.cingular.net/itemmaster/itemmaster\\_download.aspx](http://mobilitynwscm.cingular.net/itemmaster/itemmaster_download.aspx)
    - i. NWIM is updated daily.
    - ii. Warning: This is a large file.
  - b. SCM item query page can be found at:  
<http://mobilitynwscm.cingular.net/itemmaster/itemmastersearch.aspx>
    - i. SCM item query is 'live'.
    - ii. SCM lists only items matching your search criteria, a more cumbersome search.
- 4.) BOMs (kit of parts) are all listed as serial tracked, but BOMs are in fact not serial tracked.
  - a. The children (components) may be, and often are, serial tracked though.

### 8.3.2 Applying Bar Codes to Plug-In Units and Shelves

Determine where to apply the tag.

Always place the tag on the 'faceplate' if space is available.

- A faceplate is the obvious candidate, but not all material has a 'faceplate'.
- If no faceplate, use common sense and ensure below rules apply.

Make sure tag is applied to a smooth surface, not a textured surface.

Make sure the tag does not cover any port/opening.

- Ports these are needed during operation.

Make sure the tag does not cover the serial number.

- S/N is sometimes used for asset identification in addition to the tag.

Make sure the tag does not cover the Manufacture P/N.

- This information is sometimes needed for part identification.

Make sure the tag does not cover any indicator lights.

- These are used during operation and should remain visible.

Make sure the tag is viewable from the front of equipment.

Make sure the tag is not placed in an area which cannot be viewed and scanned once equipment is installed, including:

- 'top' of unit where the tag is not readily visible to anyone attempting to scan it,
- 'bottom' of unit where the tag is not readily visible to anyone attempting to scan it,
- 'side" of unit where the tag is not readily visible to anyone attempting to scan it,
- any place where cables/wires/other obstructions will prevent scanning once installed, and
- any place where adjacent unit obstructs and prevents scanning once installed.

Make sure the tag is not on any handle.

- Handles can sometimes break, thus losing the tag.

Make sure the tag is not on any detachable portion.

- Some material has detachable components, such as doors, covers, or plates.

### **8.3.3 Applying Bar Codes to Cabinets**

Avoid placing tag on doors of cabinets if it can be avoided.

- Doors sometimes get replaced, thus losing the tag.
- In the case of cabinets often the tag goes just inside the door on the actual frame.

Place tag on frame surface facing front aisle.

Avoid placing tags on any vendor labeling.

- A prime example of this is when vendors place various labels just inside a cabinet.

In the case of cabinets/enclosures avoid putting the tag on the outside of the unit.

- In the case of indoor units these tags often get missed, especially when the cabinet is open.

## 9 APPENDIX A – ATT-TP-76450 Checklist Instructions and Process

### 9.1 Purpose

The purpose of this appendix is to assist product suppliers with preparing and furnishing equipment documentation to the company representative for product evaluation purposes.

### 9.2 Scope

An evaluation reviews a product against all applicable requirements based on the equipment and its intended use in the network. Unless otherwise stated, all requirements apply to equipment systems and equipment units that will be installed in network equipment buildings and equipment areas within buildings, electronic equipment enclosures such as controlled environment vaults, outside mounted electronic equipment cabinets, and at customer locations.

### 9.3 Instructions:

Manufacturer is to complete the ATT-TP-76450 Checklist in Appendix B as follows:

Mark the appropriate column in the checklist as follows:

- “Yes” indicates that the equipment listed is compliant to the requirement.
- “No” indicates that the equipment listed is not compliant to the requirement.
- “N/A” indicates that the requirement is not applicable to the equipment listed. Each requirements checked “N/A” must include an explanatory footnote.
- .If product is ATT-TP-76200 Level 3 or unknown respond to each requirement in the checklist.
- If product is ATT-TP-76200 Level 1 or OSP respond only if applicable column is marked “yes”.

\*If equipment is evaluated by manufacturer as compliant, but deviates in some way from the stated requirement, mark “Part” (partial) in the “No” column and include an explanatory footnote.

Explanatory footnotes should be placed in the matrix following the checklist and reference specific requirement numbers for each comment.

Forward supporting documentation as required in Section 7.3.

**Note: Any No or N/A responses require written detailed in comments and supporting documentation.**

#### 9.4 Process:

Requirements marked “Yes” for compliance will require no further action.

Requirements marked “No” for non-compliance will trigger the AT&T SME for the requirement to contact the manufacturer in an effort to resolve the non-compliance. All issues must be resolved before the equipment is approved for use in AT&T.

Footnote references for requirements marked “N/A” for not applicable or “Part” for partially compliant will be reviewed by the AT&T SME for that requirement. The SME may initiate contact with the vendor for further clarification and/or resolution.

When compliance/resolution to all requirements is met, the ATT-TP 76450 SPOC will notify the AT&T Product Manager for the equipment that it is compliant.

Forward the completed checklist and supporting documentation as required in Section 7.3 to:

John Tablerion  
15248 S. Ravinia  
Orland Park Ill. 60462  
Office: 708-403-4450  
Fax: 708-460-4457  
Email: [jt3216@att.com](mailto:jt3216@att.com)

Appendix B – ATT-TP 76450 Checklist

**(NOTE: No or N/A responses below require written detailed in comments)**

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

Equipment Name/Model Number, etc.: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Product Description (check all that apply):

- |  |   |
|--|---|
| <input type="checkbox"/> Frame or Cabinet              | <input type="checkbox"/> Multi-Frame or Cabinet |
| <input type="checkbox"/> Single Shelf                  | <input type="checkbox"/> Multi-Shelf            |
| <input type="checkbox"/> Transport Product             | <input type="checkbox"/> Switching Product      |
| <input type="checkbox"/> Customer Premises Application | <input type="checkbox"/> Non-network Product    |

**ATT-TP-76200 Evaluation Type:** Level 1  Level 3  OSP

Note: If product is Level 3 or unknown respond to each requirement number below. If product is only Level 1 or OSP only respond if applicable column below is marked “yes”.

\*Refer to paragraph number in previous sections for detailed requirements

Rqmt*	Description	L1	OSP	Yes	No	N/A
<b>2 DC POWER INTERCONNECTION STANDARDS</b>						
<b>2.1 General</b>						
2.1.1	Nominal -48V DC Power	yes	yes			
2.1.2	AC Powered Equipment	yes	yes			
2.2.1	Redundant Power Feeds	n/a	n/a			
2.2.2.	Power Feeder Information	n/a	n/a			
2.2.3	Battery Return Conductor	n/a	n/a			
2.2.4	Battery Return Configuration DC-I	n/a	n/a			
2.2.5	Diverse Cable Routing	n/a	n/a			
2.3.1.	Rear Power Terminations	n/a	n/a			
2.3.2	Front Power Terminations.	n/a	n/a			
2.4.1	8 AWG and Larger Stranded Power Cable	n/a	n/a			
2.4.2	16 AWG to 10 AWG Stranded Power Cable	n/a	n/a			
2.4.3	Equipment surface terminations	n/a	n/a			
2.4.4	18 AWG Power Cable and Smaller	n/a	n/a			
2.2.5	Compliance to Table 2-1	n/a	n/a			
2.5	AC Connectors	n/a	n/a			
2.6.1	Circuit Breakers / No Power Protection – Requires bay mounted fuse panel	yes	n/a			
2.6.2	Placement in a switching environment	n/a	n/a			
2.6.3	Placement in the transport environment	n/a	n/a			
2.6.4	Fuses	n/a	n/a			
2.6.5	Approved Fuse Styles	n/a	n/a			

2.6.6	All fuse & circuit breaker shall meet Quality Level III as defined Telcordia SR-332	n/a	n/a			
2.7	Filtered Battery	n/a	n/a			
2.8	Special PDU	n/a	n/a			
2.9	Integrated Power Distribution	n/a	n/a			
2.10	Visual Alarms and Status Indicator	yes	yes			
<b>3 SYNCHRONIZATION/EXTERNAL TIMING INTERFACE STANDARDS</b>						
Please read the text of section 3 completely before proceeding with this section of the questionnaire. If you have any questions about the requirements of this section and its applicability to your DUC, or have suggestions for improving the format of this section, please contact the AT&T Common Systems synchronization SME. Text of explanations to questions posed in the questionnaire should be posted in the Notes section.						
3.1.1	Is the DUC designed to conform to Telcordia GR-1244-CORE and GR-499-CORE standards for interconnection to a GR-378-CORE compliant Timing Signal Generator system? Enter Yes or No. If response is No, skip to 3.2.1. If response is Yes, proceed to 3.1.2.	yes	n/a			
3.1.2	Will the DUC, as it will be deployed in the AT&T network, require an external frequency timing reference sourced from the site BITS systems? Enter Yes or No. If response is No, explain why the DUC does not require an external frequency timing reference sourced from the site BITS systems (e.g.: asynchronous only applications such as metro Ethernet, asynchronous IP transport, DUC will be line or loop timed, etc).	yes	n/a			
3.1.3	If 3.1.2 is No, mark 3.1.3 N/A. If 3.1.2 is Yes, does the DUC accept GR-1244-CORE compliant DS1 or CC frequency timing input references? Respond Yes or No. If 3.1.3 is Yes, explain the number and type of input references in the notes. If 3.1.2 is NO, explain the signal format of the external frequency references that are supported by the DUC.	yes	n/a			
3.1.4	Describe the external timing input interface in the notes. Include a description of the type of connections, the location of the connections, and the termination impedances supported for each signal format. If the external timing input interface is not compliant to AT&T standards as described in section 3.0, please explain how the non-compliant interface will be mitigated.	yes	n/a			
3.2.1	Will the DUC, as deployed in AT&T, require a separate dedicated GPS antenna and receiver system to supply precision frequency, time, phase, or location synchronization? Enter Yes or No. If the response is	yes	n/a			

	Yes, please explain the synchronization requirements or direct the AT&T Common Systems sync SME to supplier documentation submitted in support of this review.					
3.3.1	Questions 3.3.1 through 3.3.4 apply to a DUC that utilizes a PTP client for the timing solution. Note that the use of PTP may vary depending on the location of the DUC in a CO, MTSO, vs. a remote terminal or base station. Does the DUC, as deployed in AT&T, require PTP for a timing solution? Respond Yes or No. If response is yes, please proceed to 3.3.2. If response is NO, please skip to section 3.4.	yes	n/a			
3.3.2	Is the PTP client in the DUC compliant to the current version of the ITU-T PTP Telecom Profile? Respond Yes or No	yes	n/a			
3.3.3	Please describe in the notes the level of precision required at the PTP timed DUC in parts per million for frequency, and/or time/phase accuracy for time of day or phase requirements.	yes	n/a			
3.3.4	Is the PTP client in the DUC compatible with IPv6?	yes	n/a			
3.4.1	Questions 3.4.1 through 3.4.3 apply to a DUC that utilizes a NTP client for the timing solution. Does the DUC require NTP to deliver a frequency reference to the DUC or downstream connected network elements? Respond Yes or No.	yes	n/a			
3.4.2	What is the frequency, time, and/or phase accuracy required? Please respond in the notes.	yes	n/a			
3.4.3	Is the NTP source for this DUC and associated platform specific to the platform, meaning a dedicated GPS antenna and receiver are required as the NTP source? Respond Yes or No. If the response is Yes, please explain the NTP source or direct the AT&T Common Systems sync SME to supplier documentation submitted in support of this review.	yes	n/a			
<b>4 ALARMS</b>						
4.1	Equipment surveillance is performed at two levels, remote surveillance and local surveillance	n/a	yes			
4.2	Local and Telemetry Alarms	n/a	n/a			
4.3	Separation of Local Alarms	n/a	n/a			
4.4	Audible Alarm Cut-off (ACO)	n/a	n/a			
4.5	Telemetry Alarm Protocols (Meets one of the listed protocols)	n/a	yes			
4.6	Alarm Interconnection	n/a	yes			
4.7	Discrete Alarm Rating	n/a	yes			
4.8	Normally open and normally closed alarm outputs (Form "C" alarm relays are preferred)	n/a	yes			
4.9	Discrete Alarm Paired Leads	n/a	yes			
4.10	Discrete Alarm Dry Contacts	n/a	yes			
4.11	Housekeeping/Overhead Alarm Inputs	n/a	yes			

<b>5 FIBER</b>						
5.1	Fiber Optic Cable	n/a	n/a			
5.2	Optical Cable/ Jumpers & Connectors	n/a	n/a			
5.3	Fiber Attenuators	n/a	n/a			
5.4	Fiber Connector Boots	n/a	n/a			
5.5	Fiber Minimum Bend Radius	n/a	n/a			
5.6	Maximum Fiber Connector Length	n/a	n/a			
5.7	Minimum Distance Between Connector Housing & 90 degree bend	n/a	n/a			
5.8	Space Between Door /Panel and Fiber Connector	n/a	n/a			
5.9	Standard Fiber Connector	n/a	n/a			
5.10	Alternative FTTP Fiber Connector	n/a	n/a			
5.11	FiberOptic Cable Mode	n/a	n/a			
5.12	Fiber Transmission Material	n/a	n/a			
5.13	Maximum Optical Power Levels	n/a	n/a			
5.14	FiberFrames/Bays & Panels for all Network Elements	n/a	n/a			
5.15	Fiber Raceway	n/a	n/a			
<b>6 COPPER CABLE</b>						
6.1	DS3/STS-1 Connector & Cabling BNC Connector	n/a	n/a			
6.2	Alternative DSC/STS-1 Connector	n/a	n/a			
6.3	Coaxial Stripping Tools and Crimping Tools	n/a	n/a			
6.4	DS1 Cross-Connect Wire	Yes	n/a			
6.5	DSL Cross-Connect Wire	Yes	n/a			
6.6	Electrical Ethernet Cabling	Yes	n/a			
6.7	Electrical Jumper (Cross-Connect) – Standards	Yes	n/a			
6.8	Data Patch Panels -	n/a	n/a			
6.9	Media Converter	n/a	n/a			
6.10	Central Office Copper Wire and Cable Flammability Ratings	Yes	n/a			
6.11	Central Office Copper Wire and Cable	Yes	n/a			
6.12	Central Office Copper Coaxial Cable	yes	n/a			
6.13	Central Office Copper "Bits" Synchronous Timing Cables	yes	n/a			
6.14	Central Office Copper Wire and Cable Minimum Inside Bend Radius	yes	n/a			
6.15	Central Office Copper Coaxial Cable Minimum Inside Bend Radius	yes	n/a			
6.16	Copper Cable Terminations	n/a	n/a			
6.17	Cable Trays	n/a	n/a			
6.18	Tie Bar	n/a	n/a			
6.19	Use of "Y" Cable	n/a	n/a			
6.20	Unusual Cable Types	n/a	n/a			
6.21	Protection of Cable and Jumpers	n/a	n/a			
<b>7 VENDOR DOCUMENTATION</b>						
7.1	Softcopy Documentation	Yes	n/a			
7.2	Craft Interface Instructions	Yes	n/a			
7.3	Installation Guide: installation, provisioning, and testing	Yes	n/a			



## 10 APPENDIX C - References

ATT TP documents may be obtained on the [AT&T Technical Publication and Nebs Web site](#).

Telcordia documents may be obtained directly from Telcordia Technologies Inc.

Document Number	Document Description	
<a href="#">ATT-TP-76200</a>	Network Equipment – Building Systems	Current
<a href="#">ATT-TP-76300</a>	Installation Guide within the Central Office	Current
ATT-TP-76305	Cable Installation & Removal	Current
ATT-TP-76305-001	SNFA Cable Installation & Removal	Current
ATT-TP-76305-002	48V DC Power Single Line Diagrams	Current
ATT-TP-76306	Firestopping (non-workmanship & processes)	Current
ATT-TP-76400	Detail Engineer Requirements for the C.O.	Current
ATT-TP-76401	Space Planning	Current
ATT-TP-76401-001	Floor Loading Considerations	Current
ATT-TP-76406	Distributing Frames	Pending
ATT-TP-76407	Equipment Framework	Current
ATT-TP-76408	Equipment Superstructure	Current
ATT-TP-76410	Raised Floors	Current
ATT-TP-76412	Telco Electrical and Optical Ethernet Standards	Current
ATT-TP-76413	Connecting Block Standards (89-MDF type)	Current
ATT-TP-76414	Connecting Block Standards (COSMIC 78-112 type)	Pending
ATT-TP-76415	Connecting Block Standards for Protectors	Pending
ATT-TP-76416	Bonding & Grounding	Current
ATT-TP-76419	High-Twist Distributing Frame Wire Standards	Current
ATT-TP-76430	Synchronization Standards	Current
ATT-TP-76450	Common Systems Standards	Current
ATT-TP-76460	Fiber optic Protection in the Central Office	Pending
ATT-TP-76461	Fiber optic Connector Cleaning	Current
GR-137-CORE	Telcordia-Generic Requirements for Central Office Cable	Current
GR-518-CORE	Telcordia – Generic Switch Synchronization	Current
GR-253-CORE	Telcordia – SONET Synchronization for the Network	Current
GR-436-CORE	Telcordia – Digital Synchronization Plan	Current
GR-454-CORE	Telcordia –Supplier-Provided Documentation	Current
GR-1209-CORE	Telcordia –Fiber optic Branching Components	Current
GR-449-CORE	Telcordia –Fiber Distributing Frames	Current
FR-439	Telcordia – Operations Technology Generic Requirements (OTGR)	Current
TR-EOP-000001	Telcordia – Lightning, Radio Frequency, and 60-Hz Disturbances at the BOC Network Interface	Current
GR-833-CORE	Telcordia – NE and Transport Surveillance Messages	Current
TR-NWT-000930	Telcordia – Hybrid Microcircuits Used in Telecommunications Equipment	Current
GR-2419-CORE	Telcordia – Human Factors Requirements for Equipment to Improve Network Integrity	Current

## 11 Appendix D - ATT Contact List

Wing Eng, Principal-Network Design-Engineer -Common Systems Standards, DSX, Copper Cable Standards  
(925) 823-4616, E-Mail: [we2583@att.com](mailto:we2583@att.com)

Doug Florence, Principal-Network Design-Engineer ER - Common Systems Standards, New Product Integration  
(925) 867-9951, E-Mail: [df1538@att.com](mailto:df1538@att.com)

Ed Granger, Principal-Network Design-Engineer - Common Systems DC Power Section 2.  
(203) 553-8189, E-Mail: [eg1724@att.com](mailto:eg1724@att.com)

Wayne Hillesheim, Principal-Network Design-Engineer - Common Systems Standards Alarm Standards  
(706)374-3891, E-Mail: [wh2956@.att.com](mailto:wh2956@.att.com)

Dave Overdorf, Principal-Product Development Engineer - Common Systems Standards, Synchronization Standards  
770-232-9183, E-Mail: [do3863@att.com](mailto:do3863@att.com)

John Tablerion, Principal-Network Design-Engineer- Common Systems Standards, ATT-TP-76200 (NEBS)  
(708) 403-4450, E-Mail: [jt3216@att.com](mailto:jt3216@att.com)

Mike Yeilding, Principal-Network Design-Engineer - Common Systems Standards, Fiber Section 5.  
(925) 823-4747, E-Mail: [my1515@att.com](mailto:my1515@att.com)

Keith Lanning- Principal-Network Design-Engineer Common Systems Standards, Labeling Section ( 8.3)

Larry Payne- Principal-Network Design-Engineer Common Systems Standards Lighting Section (8.3)

## 12 Appendix E – Acronyms

- a) The term **product supplier** as used throughout this section refers to the equipment manufacturer or agent of the equipment manufacturer, whichever is appropriate for the product being considered.
- b) Requirements are those product features that **must** be provided by the equipment manufacturer. The words “shall” and “must” are used throughout this section to identify requirements.
- c) Objectives are product features that are **desired** for the long term use or application. The word “should” is used throughout this section to identify objectives.

- d) **NE**- Network Equipment or Network Element package provided by the Manufacturer for consideration.
  - e) **OEM** – Original Equipment Manufacturer
  - f) **OSMINE** – Operations Systems Modifications for Integration of Network Elements
  - g) **PDM** – Product Manager
  - h) **PDU** – Power Distribution Unit
  - i) **RMU** – Rack Mounting Unit
  - j) **TIRKS** – Trunk Integrated Records Keeping System
- SME**- Subject Matter Expert



## ATT-TP-76200

# Network Equipment and Power Grounding, Environmental, and Physical Design Requirements

**To:** Telecommunications Equipment Suppliers

**Effective Date:** June 2014  
**Issue Date:** June 2014

**Expires On:** N/A

**Related Documents:** Telcordia GR-63-CORE, GR-1089-CORE, GR-3108, ATTIS-0600307, ATTIS-0600315, ATTIS-0600319, ATTIS 0600019 and ATTIS 0600020, ATIS 06000.10.03.2011 and ATTIS-0600329.

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**Issuing Department:** Network Staff, GES Common Systems

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## 1. General

### 1.1. *Requirements and Objectives*

This document provides the requirements and objectives for the power, grounding, environmental, and physical design of Telecommunications equipment intended for use in network facilities, including outside plant/cell site and customer's premises. The appendices included in this section discuss AT&T's equipment evaluation process and identify the type of Equipment information required from equipment suppliers for the equipment evaluation process.

### 1.2. *Purpose*

The purpose of this document is to provide equipment suppliers with a comprehensive reference of equipment requirements and objectives for the subjects covered. A equipment's compliance with the requirements and objectives of this section will not be the sole basis for the acceptance of the equipment, however noncompliance with one or more of the requirements or objectives of this section may be the basis for a equipment's denial of purchase.

### 1.3. *Scope*

Unless otherwise stated, the requirements contained herein apply to equipment systems and assemblies intended for installation in all AT&T network equipment spaces, including, electronic equipment enclosures such as controlled environmental vaults, outside electronic equipment cabinets, and customer locations.

### 1.4. *Definitions*

- A. The term **equipment supplier** as used throughout this section refers to the equipment manufacturer or agent of the equipment manufacturer, whichever is appropriate for the equipment being considered.
- B. The term **company representative** as used throughout this section refers to the AT&T employee representing AT&T
- C. Requirements are those equipment features that **must** be provided by the equipment manufacturer. The words "shall" and "must" are used throughout this section to identify requirements.
- D. Objectives are equipment features that are **desired** for the long term use or application. The word "should" is used throughout this section to identify objectives.

### 1.5. *ATT-TP-76200 Internet Web Site*

Copies of this document and general information about AT&T's environmental equipment standards may be found at <https://ebiznet.sbc.com/sbcnebs/>.

### 1.6. *Equipment Evaluation Process*

Equipment must demonstrate conformance to subsets of requirements contained in ATT-TP-76200 depending on the intended application and deployment location(s) of the equipment. Specific requirements for each level and location are identified in the corresponding Equipment Supplier Requirements checklist (ESR) matrix forms identified in Table 1-1 See Appendix A for processes required to document conformance to requirements

Unless the AT&T Fast Track process is used (see Appendix A), for requirements that call for testing to verify conformance, test reports and forms **must** be forwarded to AT&T for review before the equipment will be evaluated as in conformance.

## 1.7. *Equipment Evaluation Types*

### **New Product (ESR-003 and/or ESR-001)**

New Product requirements refer to a subset of requirements that apply to all new equipment systems proposed for use in the AT&T communications network. New Products shall be evaluated for compliance to all applicable Level 3 and/or Level 1 testing and requirements.

**Ancillary (ESR-ANC) (Level 1 or 3).** Ancillary requirements refer to a subset of requirements that apply to additions to or changes to equipment previously approved for use in AT&T. If a change to an existing product, or sub-system of the product, results in the assignment of a new CLEI code, the product shall be evaluated for compliance to Ancillary requirements. See Appendix B for guidelines applicable to special considerations for testing of enhanced products.

**Product Change Notices (PCN).** PCNs indicate a change to existing equipment that has been previously evaluated for compliance to this document. PCNs must be evaluated for their effect on the equipment's ATT-TP-76200 compliance.

- When the manufacturer, a test lab or AT&T Services determine that the PCN may affect the equipment's ATT-TP-76200 compliance, the modified equipment must be tested per ATT-TP-76200, Ancillary Requirements (ESR-ANC).

**NOTE:** Depending on engineering judgment, not all requirements may need to be tested.

- When it is determined by the manufacturer, using sound engineering judgment, that a hardware or software change does not impact the equipment's ATT-TP-76200 compliance, the manufacturer may submit a letter of attestation to this effect. See Appendix A, paragraph 16.8.

**NOTE:** Except when it is obvious that the PCN will not affect the equipment's compliance, AT&T Services recommends that an accredited, third party, independent laboratory evaluate whether testing is required to verify compliance.

## 1.8. *Equipment Requirement Levels*

**Level-One (ESR-001-XXX).** Level One refers to a subset of ATT-TP-76200 requirements that forms the minimum acceptable safety requirements necessary to protect personnel and the network. Level One is applicable for Collocator's equipment and may be applicable for AT&T equipment that is not critical to the network or otherwise specified by AT&T (e.g. monitoring and test equipment).

**Level-Three - (ESR-003-XXX).** Level Three refers to the maximum applicable ATT-TP-76200 safety and environmental reliability requirements for equipment deployed in the network.

Unless otherwise detailed in this document or instructed by AT&T, Level Three is the applicable level for all network equipment.

## 1.9. *Equipment Types*

**Carrier Grade Equipment (CG)** – Equipment designed and verified for high reliability and/or safety use in Carrier Communications Spaces. See ESR-CG Level 1 and 3.

**Non-Carrier Grade Equipment (NCG)** – Equipment designed and verified to meet common commercial grade safety and reliability requirements. See ESR-NCG Level 1 and 3.

**Network Administrative Support Equipment** - Administrative network support equipment (e.g., computers, monitors, telephones, etc.) located in any network equipment space shall meet Non-Carrier Grade (NCG) Level 1 safety requirements.

**Outside Plant (OSP/CELL-SITE) Equipment \***– CG equipment designed and verified to meet hardened environmental requirements. There are four levels of OSP/CELL-SITE equipment:

- **OSP/CELL-SITE Class 1 - Controlled Protected Environments** refers to an internal environment typical to Huts and CEVs, per GR-3108-CORE
- **OSP/CELL-SITE Class 2 - (-40C to +65C) Protected Equipment in Outside Environments** refers to an internal environment typical to GR-487 compliant remote cabinets, per GR-3108-CORE
- **OSP/CELL-SITE Class 3 - (-40C to +70C) Protected Equipment in Severe Outside Environments** refers to an internal environment typical of GR-487 non-compliant remote cabinets, per GR-3108-CORE.
- **OSP/CELL-SITE Class 4 - Unprotected Environments Directly Exposed to Weather** refers to an open, unprotected environment such as ONTs, and active NIDs (iNIDs), etc where the equipment electronics are an integral part of the enclosure

Specific requirements for OSP/CELL-SITE electronic equipment are embedded in each section of this document and summarized in Forms ESR-001-OSP/CELL-SITE and 003-OSP/CELL-SITE.

\*Per Telcordia GR-3171, Generic Requirements for Network Elements Used in Wireless Networks Physical Layer Criteria, equipment deployed in an outside wireless network shall meet the same requirements as equipment deployed in wire line outside environments.

**NOTE: For questions of test requirements for OSP/CELL-SITE cabinets and other enclosures contact Jason Neal (925)823-2736, (ATT-TP76205) e-mail [jn6729@att.com](mailto:jn6729@att.com). (See Section 14)**

**Radio Frequency (RF) Transmitting Devices** – An "RF transmitting device" is one which produces RF outside the scope of GR-1089 leakage emissions. Any equipment (limited to network, administrative, or test equipment) which includes an RF transmitting device and is proposed for use in or adjacent to network equipment areas must be evaluated by AT&T to assess its potential for disturbing other network equipment.

**Equipment types requiring RF evaluation include:**

- RF transmitting devices, with or without incorporated transmitting antennas. Examples include wireless, cellular, or radio communications systems, WiFi communicating equipment (access points, etc.), and wireless control or data acquisition systems

NOTE: Commercially available personal mobile communications devices such as cellular/mobile phones, tablets, and other personal data devices which utilize cellular or WiFi need not be evaluated for these deployment locations. These devices are conditionally permitted in accordance with the GNFO CO RF Policy, ATT-TELCO-002-200-354.

- Discrete antennas or antenna systems connected to radio transmitters, such as cellular, DAS, public safety, paging, or other radio communication system
- Electrical arc discharge equipment
- Strobe or flash equipment (photographic or otherwise).

See section 2.3.C for evaluation requirements.

**Portable Test Equipment** – Equipment used on a temporary, as-needed basis to monitor the network in a Network Equipment Space. Equipment is removed nightly.

At a minimum, portable test sets, including OSP/CELL-SITE test sets, will be reviewed to the following requirements prior to deployment:

- Electrical Safety Review: An electrical safety review is necessary when the output voltage of the equipment exceeds 140 volts DC or 50 volts rms AC.
- Radiated Emissions: A review is necessary when the equipment supplier cannot certify compliance to FCC Part 15. In the absence of FCC Part 15 compliance, the radiated emissions requirements and test methods of GR-1089, Section 3 shall apply.

**NOTE:** Portable test sets that do not exceed 140 volts DC or 50 volts rms AC and are certified compliant to FCC Part 15, may be considered in compliance with the electrical safety and radiated emissions requirements and do not require review by the ATT-TP-76200 Evaluation Team.

**Network Administrative Support Equipment** - Administrative network support equipment (e.g., computers, monitors, telephones, etc.) located in any network equipment space shall meet Non-Carrier Grade (NCG) Level 1 safety requirements.

**Collocator Equipment** – Equipment placed in AT&T Network Equipment Spaces by a non-AT&T company.

Per FCC Order 99-48, AT&T may verify that Collocator's equipment meets the same safety requirements as equipment that AT&T places in its network. A list of equipment known to be deployed in AT&T's network may be obtained from the All Equipment List (AEL) located on the AT&T extranet site at <https://clec.sbc.com/clec/> (this site is available to Collocators who have a working contract with AT&T). Equipment that is already listed on the AEL will not be required to undergo a safety evaluation for compliance to this document\*.

Equipment not listed on the AEL must be evaluated for compliance to ATT-TP-76200 Level 1 (safety) requirements or Telcordia SR-3580 Level 1 (safety) requirements\*.

**NOTE:** An ATT-TP-76200 ESP Form must also be provided to allow for network integration. (See Appendix A for an overview of the evaluation process).

\*Equipment on the AEL and equipment that has been evaluated as compliant to this requirement must still meet the requirement of being necessary for interconnection and access to UNEs.

## 1.10. *Equipment Deployment Locations*

**Network Equipment Space** – Network Equipment Space refers to any AT&T carrier managed building space, owned, leased or customer provided, that is primarily used for equipment dedicated to the transport, interconnection and switching of network voice, video and data. Network Equipment Space includes Carrier Communications Space and Non-Carrier Communications Space.

**Carrier Communications Space** - AT&T Network Equipment spaces primarily dedicated to communications switching and transport equipment. Examples of these locations include COs, L-T POPs, SNRCs, MTSOs, NTCs, huts, CEVs, and environmentally controlled cell site structures, Due to national, state and local codes specific to these locations, there are ATT-TP-76200 requirements that are specific to Carrier Communications Spaces (e.g., GR-63 Fire Spread).

**Partitioned Network Space:** - Network Equipment Space physically separated from Carrier Communications Space. This space typically houses network equipment that does not meet minimum Carrier Grade Communications safety criteria and/or code compliance criteria for deployment in Carrier Communications Spaces . Examples of these locations include Customer Premise and VHO's-SHOS's. Space separated by one-hour fire rated barriers (e.g. walls, floors, ceiling, doors, etc.) from Carrier Communications Space.

**Outside Plant (OSP/CELL-SITE)** – Outside plant part of the network. Typically network locations between the inside of Network Equipment Space buildings and Customer Premises Antenna locations. OSP/CELL-SITE equipment shall be Carrier Grade.

**Most of World (MoW)** - Equipment Deployed Outside the United States:  
 Equipment Deployed Outside the United States will require verification of compliance to ATT-TP-76200/ATT-TP76450 per Appendix A and completed MoW Letter of Attestation per Section 16 Form 16.12.

**AT&T Test Laboratory** – the primary purposes of lab entry requirements for equipment under test are to ensure the safety of personnel and property. It is the objective of this requirement that verification of compliance to industry safety standards be provided for equipment prior to lab entry. However, due to needs of the business and the fact that the lab is staffed by personnel trained to work with prototype equipment, there are times when it may be necessary for AT&T to allow equipment into its lab that has not been verified in compliance to safety standards. In those cases it is incumbent upon the manufacturer to assure the equipment is safe to operate. AT&T labs will assess acceptance and test protocols for this equipment on a case-by-case basis.

- 1) Objective: Prior to entry into AT&T labs, equipment should be compliant to ATT-TP-76200 Carrier Grade Level 1 requirements, or Non- Carrier Grade Level 1 requirements, or be Listed (e.g. UL 60950)
- 2) Requirement: If equipment does not meet the above objective, the manufacturer shall submit a notarized Letter of Attestation (LOA) that the equipment meets industry electrical safety, electromagnetic emissions and fire safety standards

**NOTE:** The above requirements are applicable only for AT&T laboratory testing. All applicable ATT-TP-76200 and ATT-TP-76450 requirements must be evaluated as in conformance prior deployment into the network.

**Table1.1  
 Requirements For New Equipment Evaluations**

Locations:	Carrier Communications space		Customer Prem/Partitioned space		OSP/Cell Site Class 2-4	
Levels:	Level 1	Level 3	Level 1	Level 3	Level 1	Level 3
<b>Equipment Types:</b>						
Carrier Grade	ESR-CG L1	ESR-CG L3	CG L1 + NCG L1	CG L3 + NCG L1	ESR - OSP L1	ESR-OSP L3
Non-Carrier Grade	ESR-CG L1	ESR-CG L3	ESR-NCG L1	NCG L3	ESR - OSP L1	ESR-OSP L3
Radio Frequency (RF)	ESR-CG L1	ESR-CG L3	ESR-NCG L1	NCG L3	ESR - OSP L1	ESR-OSP L3
Network Admin Support	ESR-NCG L1	N/A	ESR-NCG L1	N/A	N/A	N/A
Collocator	ESR-CG L1	N/A	N/A	N/A	N/A	N/A

**\* Note: Less frequent type of evaluations are detailed within this document**

### 1.11. *Equipment Testing Requirements*

Any alterations to the test protocols given in this document or in referenced test standards documents must be clearly identified in the executive summary and the test results sections of test reports. Testing performed per the Telecommunications Providers Group (TCG) checklist will be acceptable to AT&T. This checklist is available on AT&T's web site at <https://ebiznet.sbc.com/sbcnebs/>.

- Conditional Requirements and Objectives contained in referenced industry standards shall not be considered AT&T requirements unless explicitly stated within the requirements sections of this document
- ETSI standards may be accepted on a case by case basis in lieu of GR/ATIS test results

### 1.12. *Laboratory Accreditation Requirements*

For tests completed after January 1<sup>st</sup>, 2004, AT&T Services will only accept test reports submitted by testing laboratories that are accredited by an accreditation agency (e.g., the American Association for Laboratory Accreditation, National Voluntary Laboratory Accreditation Program) that is recognized by the National Cooperation for Laboratory Accreditation.

- The scope of accreditation must include the test standards referenced in test reports.
- AT&T Services will accept test reports that include test data generated at non-accredited test laboratories if the tests are witnessed and verified by a representative from a company that operates an accredited test laboratory. Records shall be retained that clearly demonstrate that the individual who witnessed the test has the appropriate expertise and competence. Submitted test reports shall clearly distinguish test data generated in-house at an accredited laboratory from witnessed and verified test data. The test report shall also contain a statement attesting to the compliance of the testing to applicable standards.
- Test laboratories located outside of the United States shall be accredited in accordance with ISO/IEC Guide 25 or ISO/IEC 17025. This accreditation must be performed by a nationally recognized accrediting body operating in accordance with ISO/IEC Guide 58. Testing performed outside of the United States by a non-accredited laboratory or manufacturer's performed testing may be accepted if witnessed and verified by a U.S. Nationally Recognized Testing Laboratory.
- Each test report submitted to AT&T Services shall contain accreditation and scope information or a letter containing this information may be forwarded for our files.

### 1.13. ***Additional AT&T GES Common Systems Requirements***

The following is for notification purposes only. Refer to the directions given to obtain further information on these subjects. Verification of conformance to these subjects is not part of the evaluation process for this section.

#### **Alarms**

- A. The AT&T Services Alarm Standards Technical Manual, BSP 801-601-900MP, is the official repository of standard alarm information for all network elements (NE) deployed within the AT&T Local Exchange Carriers' (AT&T LEC) network of central offices and remote locations, exclusive of switching equipment. Specifically, this document includes, but is not limited to, concepts and philosophies, interconnect methodologies and alarm details, as related to the alarm monitoring of transmission equipment, loop equipment, power equipment and building or environmental equipment. This document is available to equipment manufacturers which have non-disclosure contracts with AT&T at the AT&T Services Extranet web site. Questions regarding access to this web site should be referred to the vendor's local AT&T Services contacts. All others should reference the requirements for alarms found in Section 4 of ATT-TP-76450.
- B. Prior to the installation of any network equipment into an AT&T LEC location, and, as part of the Approval For Use (AFU) process, all such equipment shall be reviewed by the Alarm Standards Committee to ensure that it meets the minimum alarm requirements set forth in the afore mentioned ATT 801-601-900 and/or ATT-TP-76450.
- C. All manufacturers submitting network equipment for review and consideration should pay specific attention to Section 4 of ATT-TP-76450 for minimum alarm and interconnection requirements.

#### **Synchronization**

Equipment approved for use in the AT&T LEC network must be compliant to AT&T Services Synchronization standards. These requirements are contained in the AT&T-TP-76450. This document may be obtained from the AT&T Services internet web site at <https://ebiznet.sbc.com/sbcnebs/>.

#### **VRLA Battery –**

Prior to consideration for approval within the AT&T's network, all Valve Regulated Lead Acid Batteries must meet and be found compliant to GR-4228 – Level III; VRLA Battery String Certification Levels Based on Requirements for Safety and Performance.

#### 1.14. ***GES Common Systems Placement and Interconnection Standards***

Other AT&T Services physical and functional requirements pertaining to new equipment placement in and connection to AT&T facilities (e.g., dc power, cable routing and connections, etc.) are contained in ATT-TP 76450. This document may be obtained from the AT&T Services internet web site at <https://ebiznet.sbc.com/sbcnebs/>.

#### 1.15. ***Applicability of Other Publications***

All or part of equipment's requirements and objectives may be contained in other technical publications for some subjects. Unless otherwise stated in the text of this document all references to other publications are to their most current issue. When an industry standard is re-issued, conformance to requirements specifically cited within this publication that have been revised are immediately acceptable to AT&T. Conformance to the previous issue of the industry standard is acceptable for up to 6 months from the date of the new issue unless otherwise stated within this document.

#### 1.16. ***Reasons for Re-issue***

Changes to Issue: 19

The contents of this section are revised according to business objectives and the evolution of technology. The Reason for Reissue part of this section identifies the changes made to this document when it is revised. Sections:

Section: 1.6 Equipment Evaluation Process  
Section: 1.11 Equipment Requirements  
Section 6 Thermals  
Section 9 Shock and Vibration  
Section 10 Fire Resistance  
Section 11 Spatial  
Section 12 Physical Design and Manufacturing Requirements  
Section 15.2 ESR-Form Description  
Appendix A  
Appendix A 16.11 Solder Joint Attestation

#### 1.17. ***Effective Date of this Issue***

Compliance to new or modified requirements added to this issue of ATT-TP-76200 will be required immediately.

1.18. **Comments**

*Comments or questions regarding the content of this section should be directed to:*

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## 2. Electromagnetic Compatibility

### 2.1. *GR-1089-CORE*

The electromagnetic compatibility and electrical safety requirements for Carrier Grade equipment are primarily stated in Telcordia publication GR-1089-CORE Electromagnetic Compatibility and Electrical Safety Generic Criteria for Network Telecommunications Equipment. The electromagnetic compatibility and electrical safety requirements for equipment located in the outside plant (OSP/CELL-SITE), including customer premises are primarily stated in Telcordia publication GR-3108-CORE, Generic Requirements for Network Equipment in the Outside Plant.

### 2.2. *Equipment Type*

The equipment supplier shall determine the Equipment Type and record the appropriate numerical equipment. To determine the Equipment Type, refer to GR-1089-CORE, Appendix B for all equipment. GR-1089-CORE provides guidelines for applying the aforementioned electromagnetic compatibility requirements. Application of the various criteria is a function of the type of equipment under consideration, its connection to the telecommunications network and the intended location of the equipment.

### 2.3. *Electromagnetic Interference*

**A. Carrier Grade Equipment** shall meet the radiated emission requirements stated in section 3.2 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the radiated emission requirements stated in section 5.2.3 of GR-3108-CORE.

**C. RF Transmitting Equipment.** The use of radio frequency (RF) transmitting devices is restricted in and adjacent to network equipment areas, including Carrier Communication Space, Partitioned Network Space, and OSP/Cell site GR-3108 Class 1 CEV/HUT. Any equipment which includes an RF transmitting device that will produce RF energy in network equipment space shall be evaluated when any of the following conditions exist:

1. The equipment includes a radio frequency (RF) transmitter, strobe/flash, or arc discharge device
2. The equipment is capable of transmitting any type of information wirelessly via radio frequencies
3. The equipment includes an internal or external transmitting antenna

For each RF transmitting device which meets one or more of the above criteria, Form RFTX (15.17) must be completed and submitted. See Paragraph 15.6 for further explanation of this form.

NOTE: These requirements are in addition to other "leakage" RF emissions requirements such as those stated in Telcordia GR-1089 Electromagnetic Interference, "Electric Fields Radiated Emission Criteria for Intentional Radiators," which reads "The limits apply to frequencies of unwanted emissions and not the fundamental [transmitted] frequency." In carrier grade network equipment areas, all significant emissions (intentional or unintentional) are "unwanted" and must be evaluated to assess the risk of disturbing other network equipment.

## 2.4. *Conducted Emissions*

**A. Carrier Grade Equipment** shall meet the conducted emission requirements stated in section 3.2 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the conducted emission requirements stated in section 5.2.3 of GR-3108-CORE.

## 2.5. *Immunity*

**A. Carrier Grade Equipment** shall meet the immunity requirements stated in section 3.3 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the immunity requirements stated in section 5.2.3 of GR-3108-CORE.

## 2.6. *Lightning and AC Power Faults*

**A. Carrier Grade Equipment** shall meet the applicable lightning and ac power fault requirements stated in sections 4 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the applicable lightning and ac power fault requirements stated in section 5.2.4 of GR-3108-CORE. The equipment's Port Type shall be determined using GR-1089, Appendix B.

**C. Customer-Side Optical Network Terminals (ONTs) and Intelligent Network Interface Devices (iNIDs) Cable Ports** placed at a customer premises shall have the electrical ports that interface with CPE defined as follows:

Ethernet and POTS – Type 4a for both lightning and AC power fault  
Coax - considered Type 4a, but are tested as Type 4 ports.

## 2.7. *Steady State Power Induction*

**A. Carrier Grade Equipment** shall meet the steady state power induction requirements stated in section 5 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the steady state power induction requirements stated in section 5.2.5 of GR-3108-CORE.

## 2.8. *Electrical Safety Criteria*

**A. Carrier Grade Equipment** shall meet the electrical safety requirements stated in section 7 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the steady state power induction requirements stated in section 5.2.7 of GR-3108-CORE.

**C. When listing by an NRTL** is required by TP76200 for telecommunications equipment, the following requirement for listing shall be used

Network communications equipment shall be listed as required by applicable codes, and customer requirements. The latest published codes such as the US/Canadian National Electrical Codes (NEC/CNEC), OSHA define when use of a listed product is required, and provide exemptions to the listing requirements if certain provisions are met. It is recommended that the equipment vendor consult with the service provider regarding specific listing requirements if there is any question.

## 2.9. *DC Potential Difference*

**A. Carrier Grade Equipment** shall meet the dc potential difference requirements stated in section 6 of GR-1089-CORE.

**B. Outside Plant/Cell Site Equipment** shall meet the dc potential difference requirements stated in section 5.2.6 of GR-3108-CORE

## 2.10 *Surge Protection Devices*

This section refers to primary protectors or standalone protectors, not secondary or tertiary protectors.

All such surge protectors deployed in the AT&T Network must be listed by a NRTL to the following standards:

Primary Protectors	UL 497
Secondary Protectors	UL 497A
Data Protectors	UL 497B
Coax Protectors	UL 497C
Antenna Lead in Protectors	UL 497E

In addition, all such surge protectors must also meet the requirements of the latest issue of either Telcordia GR 974,1361 or 3154.

### 3. Acoustic Noise

**A. Carrier Grade Equipment** shall meet the acoustic noise requirements as follows:

- I. Level 3 -section 4.6 of GR-63-CORE Specifically Table 4-8 for equipment to be located in an attended room, i.e. 78 LWAd (dB)
- II. Level 1:  
Option 1 – Meet the Level 3 Requirement above  
Option 2 - 73 dBA sound pressure, as measured according to ANSI ASA S12.12.10-2002, or a comparable standard.

**B. OSP/CELL-SITE Equipment** shall conform to Section 6.6 of Telcordia GR-3108

**Note:** Acoustic noise requirements do not apply to either CLECs or to Non Carrier Grade Level 1 equipment.

### 4. Electrostatic Discharge (ESD) and Electrical Fast Transients (EFT)

**Carrier Grade and OSP/CELL-SITE** equipment shall meet the requirements in this section.

#### 4.1. *ESD Immunity Criteria*

Equipment shall meet the ESD immunity criteria requirements for normal operation and be tested for installation and repair objectives according to section 2.1.2 (ESD Immunity Criteria) of Telcordia's GR-1089-CORE, document. All tests shall be conducted as described in section 2.1.4 of GR-1089 and IEC Publication 61000-4-2.

#### 4.2. *Special Requirements and Maintenance Information*

Any additional equipment-specific requirements in paragraph 2.1.2.4 of GR-1089-CORE shall be described in the report.

#### 4.3. *Electrical Fast Transient (EFT)*

Equipment shall be tested in accordance with section 2.2 of Telcordia's GR-1089-CORE, document with tests conducted as described in section 2.2.1.

## 5. Grounding

**Carrier Grade and OSP/CELL-SITE** equipment shall meet the requirements in this section.

### 5.1. *Bonding and Grounding Requirements*

Structures, equipment and power systems submitted for evaluation shall meet applicable Bonding and Grounding requirements of section 9 of GR-1089-CORE. For Ancillary reviews, only the short circuit test data of section 9.10 is required.

## 6. Thermal

### 6.1. General

**Thermal management standards for AT&T equipment space are divided into three distinct categories:**

- Temperature and Humidity
- Altitude
- Heat Dissipation

Each area has specific standards based on the level of compliance review requested. Typically Level 1 standards focus on personal and equipment safety. Level 3 compliance reviews build on the requirements in Level 1 and add network reliability standards.

### 6.2. Temperature and Humidity

#### A. Level 1 - Compliance Reviews

##### 1) Carrier Grade/Non-Carrier Grade Equipment:

- i. There are no reporting requirements.

##### 2) OSP/Cell Site Equipment

- i. Equipment shall conform to Telcordia GR-3108-CORE, Section 4.6.

#### B. Level 3 – Compliance Reviews

##### 1) Carrier Grade/Non-Carrier Grade Equipment

- i. Equipment shall conform to Telcordia publication GR-63-CORE, Section 4.1.1 and 4.1.2.

##### 2) OSP/Cell Site Equipment

- i. Equipment shall conform to the applicable requirements in GR-3108-CORE, Sections 4.1, 4.2, 4.3, 4.4, 4.5, and 4.6.

### 6.3. Altitude

#### A. Level 1 - Compliance Reviews

##### 1. All Equipment Types

- a. There are no reporting requirements

#### B. Level 3 - Compliance Reviews

##### 1. Carrier Grade/Non-Carrier Grade Equipment

- a. Equipment shall conform to Telcordia publication GR-63-CORE, Section 4.1.3.

##### 2. Outside Plant/Cell Site Equipment

- a. Equipment shall conform to Telcordia publication GR-3108-CORE, Section 4.7.

## 6.4. Heat Dissipation

### A. General Information

AT&T utilizes both the nominal (normal operating) and maximum heat values (use Watts vs. BTU) for equipment when designing equipment space infrastructures. The nominal heat value is the primary driver of cooling requirements. Heat values are documented on the ESP form and, where required, on the ATIS charts.

ATIS heat reporting charts provide five (5) points of heat. This information provides a more detailed understanding of the overall equipment cooling demand.

- Values entered into ESP and ATIS forms may be measured and/or calculated values.

The configuration of equipment deployed in OSP/CELL-SITE cabinets must be approved by OSP/CELL-SITE staff prior to approval for use.

### B. Level 1 - Compliance Reviews

#### 1. Carrier Grade/Non-Carrier Grade Equipment

- a. Equipment shall conform to Telcordia publication GR-63-CORE, Section 4.1.6.

#### 2. Outside Plant/Cell Site Equipment

- a. Equipment shall conform to Telcordia publication GR-3108-CORE, Section 4.2.

### C. Level 3 - Compliance Reviews

#### 1. Carrier Grade/Non-Carrier Grade Equipment

- a. Equipment shall conform to Telcordia publication GR-63-CORE, Section 4.1.6.
- b. Manufacturer shall document on ATIS Chart 1 the five (5) equipment heat levels.

#### 2. Outside Plant/Cell Site Equipment

- a. Equipment shall conform to Telcordia publication GR-3108-CORE, Section 4.2.
- b. Manufacturer shall document on ATIS Chart 1 the five (5) equipment heat levels.

### D. ESP Form – Heat Dissipation Data Reporting – All Equipment Types/ Review Levels

#### 1) General

Section 6 heat dissipation results shall be stated on ATT-TP-76200 form ESP-001 or ESP-002 for individual units and maximum configured systems.

## 2) Reporting

ATT-TP-76200 Form ESP-001/002 (page 2) shall be used to report:

- a. Nominal Heat – Typical operating conditions with AT&T card/traffic load
- b. Maximum Heat – This is typically the heat associated with the equipment at maximum power draw.

## E. ATIS Table 1 – Heat Dissipation Data Reporting – Level 3 Reviews / All Equipment Types

### 1) General

In addition to the ESP form, ATIS Table 1 Heat Dissipation Summary in Watts shall be submitted. The table is found in the Alliance for Telecommunications Industry Solutions: ATIS- 0600010.03.2011 Heat Dissipation Requirements for Network Telecommunications Equipment).

The document may be downloaded for a fee from the ATIS website <http://www.ATIS.org>. The document is copyright protected so it is not included in this standard. Refer to the ATIS site for information on access and downloading of ATIS tables. The ATIS document provides specific information and examples on how to complete each table.

The intent of Table 1 is to provide heat dissipation at different operating points from 0% (sleep mode), to Idle (no traffic estimated 25%) up to 100% maximum for the equipment. It is expected that the 50% (nominal) and the estimated 75% (full load) entries will provide critical information for cooling system planning purposes. The 50% (nominal) operating point will typically be the same figure provided on the ESP form nominal (Total). The 100% (maximum) operating point will typically be the same figure provided on the ESP form maximum (Total).

Table 1 - Heat Dissipation Summary (Watts)<sup>45</sup>

	Device <sup>6</sup>	(Sleep), 0%	(Idle), 25%	(Nominal), 50%	(Full Load), 75%	(Max), 100%	Optional
1	<u>Device</u>	N/A	23.12 - M	83 - M	103 - C	120 - C	
2	<u>Device</u>	N/A	29.41 - M	50 - M	51 - C	52 - C	
3	<u>Device</u>	N/A	31.22 - M	40 - M	60 - C	80 - C	
4	<u>Device</u>	N/A	33.88 - M	55 - M	70 - C	83 - C	
5	<u>Device</u>	N/A	9.56 - M	20 - M	21 - C	23 - C	
6	<u>Device</u>	N/A	57.49 - M	191 - M	215 - C	240 - C	
7	<u>Device</u>	N/A	13.69 - M	28 - M	29 - C	30 - C	
8	<u>Device</u>	N/A	23.12 - M	83 - M	103 - C	120 - C	
9	<u>Device</u>	N/A	57.49 - M	191 - M	215 - C	240 - C	
10	<u>Device</u>	N/A	13.69 - M	28 - M	29 - C	30 - C	
11	<u>Device</u>	N/A	57.49 - M	191 - M	215 - C	240 - C	
12	<u>Device</u>	N/A	13.69 - M	28 - M	29 - C	30 - C	
13	<u>Device</u>	N/A	378.44 - M	416 - M	460 - C	500 - C	
	<b>Total</b>	N/A	<b>742.29</b>	<b>1404</b>	<b>1600</b>	<b>1788</b>	

Figure 6.2 - ATIS – Chart 1 – Heat (Example)

## 6.5. Surface Temperature

### A. All Level Reviews

#### 1. Carrier grade/Non-Carrier Grade Equipment

- a. Equipment shall conform to Telcordia publication GR-63-CORE, Section 4.1.7.

#### 2. OSP/Cell Site Equipment

- a. Equipment shall conform to Telcordia publication GR-3108, Section 4.2.2.

## 6.6. Air Flow

### A. Level 1 - Compliance Reviews

#### 1. Carrier Grade/Non-Carrier Grade Equipment

- a. Manufacturer shall document on the ESP form that the equipment is either:
  - i. Cooled via electric motor – fan forced, or
  - ii. Cooled via convection, or
  - iii. Other
- b. Manufacturer shall document on the ESP form that the air flow(s) of the equipment are:
  - i. Standard – Front to Rear

- ii. Non Standard – Other than Front to Rear
- iii. Multiple-Mixed paths

## **2. OSP/Cell Site Equipment**

- a. Manufacturer shall document on the ESP form that the equipment is either:
  - i. Cooled via electric motor – fan forced, or
  - ii. Cooled via convection, or
  - iii. Other
  
- b. Manufacturer shall document on the ESP form that the air flow(s) of the equipment are:
  - i. Standard – Front to Rear
  - ii. Non Standard – Other than Front to Rear
  - iii. Multiple-Mixed paths
  
- c. Equipment shall conform to Telcordia publication GR-3108 Section 4.2.1.2

## **B. Level 3 – Compliance Reviews**

### **1. Carrier Grade Equipment**

- a. Manufacturer shall document on the ESP form that the equipment is either:
  - i. Cooled via electric motor – fan forced, or
  - ii. Cooled via convection, or
  - iii. Other
  
- b. Manufacturer shall document on the ESP form that the air flow(s) of the equipment are:
  - i. Standard – Front to Rear
  - ii. Non Standard – Other than Front to Rear
  - iii. Multiple-Mixed paths
  
- c. Equipment shall conform to Telcordia publication GR-63-CORE, Section 4.1.8 inclusive of O4-35 and O4-36
  
- d. Manufacturer shall document on ATIS Chart 2 (see Figure 6.5 below) the equipment air flow paths and velocity

### **2. OSP/Cell Site Equipment**

- a. Manufacturer shall document on the ESP form that the equipment is either:
  - i. Cooled via electric motor – fan forced, or
  - ii. Cooled via convection, or
  - iii. Other

- b. Manufacturer shall document on the ESP form that the air flow(s) of the equipment are:
  - i. Standard – Front to Rear
  - ii. Non Standard – Other than Front to Rear
  - iii. Multiple-Mixed paths
- c. Equipment shall conform to Telcordia publication GR-3108 Section 4.2.1.3

### C. Airflow Data Reporting

#### 1. All Equipment Types and Level Reviews

##### a. ESP Form Airflow Reporting Convention

Manufacturer shall provide positive air flow entries on the applicable ESP Form for designations of equipment following the convention identified in below. Where more than one airflow path is present, a separate reference shall be provided for each path.

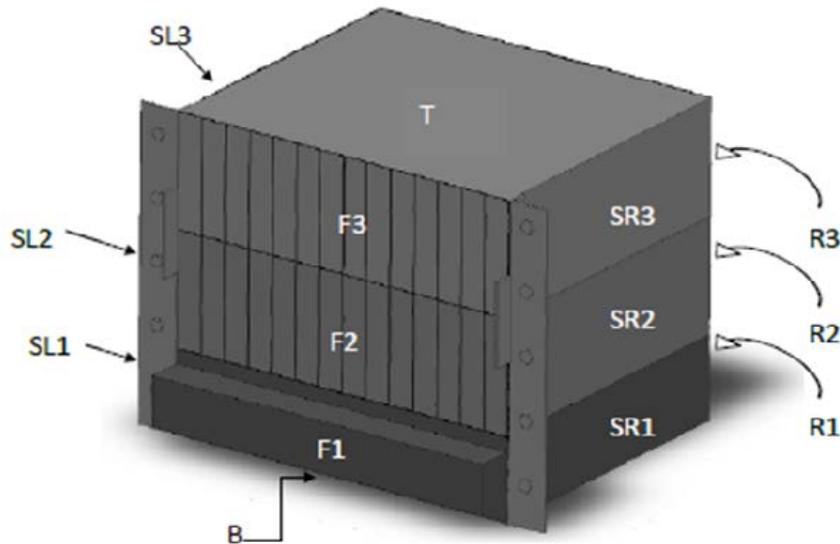


Figure 6.3 - Air Flow Designations

##### b. ESP Form Airflow Path Reporting

Manufacturer shall state **Yes** for item Air Flow Path Design on Form ESP-001/2 if cooling air flow of your equipment adheres to this cooling scheme. Air flow paths other than F(X)-R(X) (or BXT for OSP) require answering this question with a **No** (see **Figure 6.4 - ESP – Path Designations**).

- i. Manufacturer shall enter the respective airflow path(s) in the space provided adjacent to the Yes or No indicator on Form ESP-001/2.
- ii. Where more than one path exists, separate each path with a comma (e.g., F1-R3, F2-R3).
- iii. Other cooling methods shall be explained with a statement included as attachment to Form ESP-001/002.

**Airflow path design: – REQUIRED FOR ALL SUBMISSIONS**

Are equipment air flow path(s) only front (intake) to rear (exhaust) (FX - RX)? Yes \_\_\_\_\_ No \_\_\_\_\_

If No:

- Specify Path(s) \_\_\_\_\_
- Attach a diagram depicting each of the path(s) & Specify direction of each of the flow(s)

**Figure 6.4 - ESP – Path Designations**

**c. ESP Form - Non-Standard Airflow Path Reporting**

Equipment cooling airflow designs other than front to rear/top (or BXT for OSP) are considered non-preferred (e.g., side flow, etc.).

- i. Equipment with non-preferred air flow path(s) will no longer be considered for approval unless submitted with an integrated / attached air flow redirection solution which effectively adjusts the air flow to the standard front to rear requirement.
- ii. Equipment with non-preferred air flow path(s) will be considered by ATT Services; however non-preferred flow equipment will be considered on a case by case basis and will require deployment restrictions or equipment revisions prior to deployment.

Specifically, side to side air flow (e.g., SR2-SL2, etc.) and bottom to top airflow (e.g., B-T) (Equipment for Mobility remote offices accepted) shall require air deflection units as part of the equipment deployment to affect the change of air flow to front to rear.)

**2. ATIS Table 2 Airflow Reporting - General**

The ATIS Table 2 Airflow Measurements source information is found in the same ATIS document (ATIS- 0600010.03.2011 Heat Dissipation Requirements for Network Telecommunications Equipment) described in Section 6.4.E above.

The intent of ATIS Table 2 is to provide additional information of the velocity(ies) and direction(s) of the exhaust air of the equipment. These entries provide critical information for cooling system planning purposes.

**Table 2 • Airflow Measurements**

		<i>(Sleep)</i> 0% <i>(Measured)</i>	<i>(Idle)</i> 25% <i>(Measured)</i>	<i>(Nominal)</i> 50% <i>(Measured)</i>	<i>(Full Load)</i> 75% <i>(Measured or Calc.)</i>	<i>(Max)</i> 100% <i>(Measured or Calc.)</i>
1	<b>DEVICE</b> Dimensions (WxHxD) inches			W=19.0" H= 5.2" D=16.2"		
2	<b>INTAKE</b> • Location(s) • Dimensions (WxH) inches			A) F2 B) C) W=4.88" H=2.48"		
3	<b>EXHAUST</b> • Location(s) • Dimensions (WxH) inches			A) R2 B) C) W=4.88" H=2.48"		
4	<b>EXHAUST</b> • Angle 0 = Horizontal			A) 0 degrees B) C)		
5	<b>EXHAUST</b> Volume ft <sup>3</sup> /min	A) 0 CFM B) C)	A) 33.6 CFM B) C)	A) 60.0 CFM B) C)	A) 88.2 CFM B) C)	A) 109.6 CFM B) C)
6	<b>EXHAUST</b> Velocity ft/min	A) 0 FT/MIN B) C)	A) 400 FT/MIN B) C)	A) 714 FT/MIN B) C)	A) 1048 FT/MIN B) C)	A) 1304 FT/MIN B) C)
7	<b>TEMP</b> Shelf/ Frame	25 C				

**Figure 6.5 - ATIS – Chart 2 – Air Flow**

## 7. DC Power

The following requirements are referenced from, but not limited to, the most recent ATIS-0600315. Test reports showing conformance to all objectives in GR-1089-CORE Section 10 will be accepted as demonstrating conformance to respective requirements in 7.1 through 7.8 of this Section (ATT-TP-76200 Section 7)

**All DC powered Carrier Grade network equipment deployed in Network Equipment Spaces and Outside Plant/Cell Site shall meet the requirements of this section.**

**The requirements in this section are for nominal -48 VDC Network Elements operating in a steady state voltage range of -40 VDC to 56.7 VDC per Table 1 of ATIS-0600315.**

NOTE: AT&T Services may have other DC Power requirements including but not limited to those referenced in ATT-TP-76450, Telcordia's GR-499-Core and GR-513-Core.

Unless otherwise stated, all requirements shall apply to the dc power input terminals of the telecommunications load equipment. Although systems vary in architecture, all tests in this standard shall be performed with the minimum number of power supply modules installed in the system that can be utilized in practice (except for the noise return tests). For instance if a system has a redundant power supply module(s), all the redundant supply modules shall be disabled or removed during the tests in this standard (unless they physically cannot be removed or disabled when the equipment is deployed). In addition, for systems with multiple feeds such as "A" and "B", power is only supplied to one feed during the tests in this standard.

### 7.1. *Steady-State Input DC Voltage Requirements*

The telecommunications load equipment shall meet its operational requirements at any input voltage of the correct polarity between and including the minimum and maximum values specified in Tables 1 in ATIS-0600315.

### 7.2. *Undervoltage Requirements*

Equipment shall operate properly when exposed to steady state undervoltage conditions and shall comply with the conformance criteria as described in ATIS-0600315. The equipment supplier shall provide a report containing the test methods and results for the above requirement.

### **7.3. *Minimum Operating Voltage***

Specify the minimum voltage at which the equipment remains fully operational and verify the equipment will recover to a fully operational state after losing power.

### **7.4. *Current Drains***

#### **7.4.1 List 1 Current Drain**

The List 1 current drain, for a maximum configuration of cards and shelves, shall be provided in amperes on the appropriate ESP form. List 1 drain is the average busy-hour current at normal voltage and operating conditions.

#### **7.4.2 List 2 Current Drain**

The List 2 current drain, for a maximum configuration of cards and shelves, shall be provided in amperes on the appropriate ESP form. List 2 drain is the peak current during emergency operating limits of the EUT and with normal operating conditions (no short circuits or other malfunctions).

### **7.5. *Overvoltage Requirements***

Telecommunications load equipment shall not be permanently damaged or permanently have its performance degraded when an input voltage of correct polarity, with a value between 0 V and the maximum voltage level for each nominal voltage plant specified in Tables 1 of ATIS-0600315. is applied for any period of time.

Equipment shall operate properly when exposed to steady state overvoltage conditions, shall comply with the conformance and test results shall be recorded in a test report as described in ATIS-0600315.

### **7.6. *Overvoltage Transient Requirement***

Equipment shall operate properly when exposed to an overvoltage transient condition , shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315.

### **7.7. *Protective Device Operation Transient***

Equipment shall operate properly when exposed to transient conditions, shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315. Testing methods shall be utilized to ensure prevention of malfunction or damage.

### **7.8. *Electrical Noise Requirements***

#### **7.8.1 Noise immunity**

Equipment shall operate properly when exposed to electrical noise, shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315. Voiceband noise shall only apply to equipment with analog voiceband ports effective with GR-1089-CORE.

#### 7.8.2 Noise returned by the telecommunications load equipment

Equipment shall not return excessive noise onto the DC power system, the equipment shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315. Requirement 5.6.2.1, Voice Frequency Noise Requirements are no longer required effective with GR-1089-CORE Issue 6.

## 8. Airborne Contaminants

### 8.1. *Controlled Environments*

Equipment intended for installation in controlled environment spaces shall meet the Airborne Contaminants requirements for indoor equipment as stated in section 4.5 of GR-63-CORE.

**A. Carrier Grade Equipment** shall conform to the MFG test performed for 14 days as detailed in Telcordia GR-63, Issue 3.

**B. OSP/CELL-SITE** Huts, CEVs and sealed GR-487-type cabinets are considered a controlled environment and shall conform to the MFG test performed for 14 days as detailed in Telcordia GR-63.

### 8.2. *Uncontrolled Environments (OSP/CELL-SITE)*

A. Equipment intended for use in **Class 2, 3 and 4** OSP environments (i.e., unsealed cabinets installed on pads or poles) with no filtration shall meet GR-63-CORE, OSP Airborne Contaminants requirement R4-100, Section 4.5.2.1 for outdoor equipment.

B. Equipment intended for use in sealed Class 2 cabinets shall meet GR-63 indoor Airborne Contaminants requirements.

C. **Class 4** Equipment shall meet the Salt Fog Exposure requirements of GR-3108-CORE, Section 6.1.

### 8.3. Fan Filter Requirements

- A. **Carrier Grade Equipment** larger than 1U located indoors, except for power source equipment (e.g. rectifiers, etc.) shall conform to the fan filter requirements contained in GR-63-CORE
- B. *Carrier Grade Equipment 1U or smaller located indoors will be accepted without fan filters.*
- C. **OSP/CELL-SITE Equipment**

**Network Elements and/or other electronic equipment deployed inside GR-487 compliant cabinets with a:**

- I. GR-3108 Class 1 compliant environment shall be equipped with fan filters that meet or exceed the requirements of Telcordia GR-63-CORE Section 4.1.5.2 requirements for air filters.
  - II. GR-3108 Class 2 compliant environment shall not be equipped with fan filters.
  - III. GR-3108 Class 3 compliant environment shall not be equipped with fan filters.
  - IV. **GR-3108 Class 4 compliant environment is N/A.**
- D. GR-63-CORE, Objective 04-25 for fan filter alarms shall be a requirement.

## 9. Shock and Vibration

Equipment shall conform to the requirements in this section except where specified.

### 9.1. Handling and Transportation - Shock

All Compliance Reviews: Network equipment shall be designed with tolerance for shock of transportation and handling from manufacturer's facilities to job sites without sustaining physical damage or affecting functional performance.

- A. Carrier Grade / Non-Carrier Grade application: The manufacturer shall be in compliance to handling and transportation shock requirements specified in Telcordia document GR-63-CORE. Equipment test documentation may not be requested with the understanding that the equipment manufacturer is responsible to assure receipt of acceptable and functional equipment to the job sites.
- B. Outside Plant / Cell Site application
  - 1) The manufacturer shall be in compliance to transportation vibration requirements specified in Telcordia document GR-3108-CORE, Section 6.3.1.5.
  - 2) OSP / CELL-SITE equipment that weighs 220 lbs (100 kgs) or less shall conform to the Drop Test requirements GR-3108-CORE, Section 6.3.1.4.

### 9.2. Handling and Transportation - Vibration

- 1. All - Compliance Reviews:
  - a) Network equipment shall be designed with tolerance for transportation and handling from manufacturer's facilities to the job site without sustaining physical damage or affecting functional performance as specified in GR-63-CORE. AT&T Services may not require test documentation with the understanding that the equipment manufacturer is responsible to assure receipt of acceptable and functional equipment to the AT&T job site.

### 9.3. Seismic - Vibration

- A) Level 1- Compliance Reviews:
  - a. Carrier Grade / Non-Carrier Grade application: Equipment does not require earthquake tests to be conducted; however, equipment shall be installed in framework suitable for resisting earthquake loads and framework secured appropriately to building.

- b. Outside Plant / Cell site application: Equipment does not require earthquake tests to be conducted; however, equipment shall use mounts suitable for resisting earthquake loads. Network equipment intended for outside plant / Cell site applications and designed in accordance to GR-3108 will be in conformance following requirements of Carrier Grade equipment.

B) Level 3 - Compliance Reviews:

- a. Carrier Grade / Non-Carrier Grade application: Network equipment shall be designed for service in high seismic risk locations. Equipment shall demonstrate conformance to Telcordia GR-63-CORE, or ATIS-0600329 earthquake requirements by having equipment assembly tested on shake table and submitting documentation of successful test results.
- b. Outside Plant / Cell site application: Equipment shall be designed for service in high seismic risk locations. Equipment shall demonstrate conformance to Telcordia GR-3108-CORE, Section 6.3.2 earthquake requirements by having equipment assembly tested on shake table and submitting documentation of successful test results.

#### 9.4 Positive Latching

All network equipment shall have circuit pack latches or retainers to prevent pack and module walkout. Ejectors are not retainers and should not be used for that purpose.

#### 9.5 Hard Drive Backup

Hard drive storage units used with network equipment shall be designed with tolerance for shock and vibration by physical isolation of drives, backup systems or self-recovery capabilities to assure service integrity.

#### 9.6 Standard Frame

Network equipment shall be designed for mounting in telecommunications industry standard framework, relay racks. However, equipment deeper than 12 inches, heavier than 400 pounds or designed for special housings may require framework other than standard relay racks. For safety consideration, a loaded framework during transport or on site awaiting installation should temporarily be able to stand upright on its own when not secured. If weight distribution of equipment in framework results in framework falling backward or forward, special deeper framework is to be provided.

#### 9.7 Shelf Support Frame

All network equipment assemblies 7'-0" tall and under shall be designed for freestanding installation in AT&T equipment areas. Freestanding is defined as framework not secured overhead but with provisions for floor anchors of appropriate size and quantity to secure equipment from overturning under worst-case site conditions.

## 9.8 Office Vibrations

All – Compliance Review:

- a. Carrier Grade / Non-Carrier Grade application: Network equipment shall be designed for operation under office vibration conditions specified in Telcordia document GR-63-CORE. AT&T Services may not request test documentation with the understanding that the equipment manufacturer is responsible to assure operational reliability for conditions that may exist in AT&T equipment locations
- b. Outside Plant / Cell site application: Equipment intended for outside plant applications shall be designed and tested in accordance to Telcordia GR-3108 paragraph 6. 3.3 Low Level Vibration Resistance test procedures. The low level vibration resistance tests differ from GR-63-CORE tests, instead GR-3108 follows ETSI EN 300 019 for IEC Class 4M5 test standards.

## 9.9 Floor Loading

Floor loading requirements specified in Telcordia document GR-63-CORE shall not be exceeded. The manufacturer shall consider the worst case configuration of heaviest arrangement within a single framework when analyzing floor load. The configuration may need to include weight within a frame contributed from equipment supplied by others.

## **10. Fire Resistance**

**Equipment** shall conform to the requirements of this section.

### **10.1. Minimum Fire Resistance**

This part provides the minimum fire resistance requirements for equipment and apparatus intended for installation in the network equipment facilities. All equipment shall be tested or otherwise evaluated for compliance with the fire resistance criteria provided in this part.

### **10.2. Auxiliary Equipment**

Full compliance of the requirements in this document do not apply to auxiliary monitoring equipment such as oscilloscopes, personal computers, portable test equipment, etc., which are not integral to the equipment. However, such auxiliary equipment must have either UL listing or be ATIS-0600307 compliant.

### **10.3. Materials/Components**

The materials and components used in the construction and interconnection of equipment shall comply with the most current issue of ATIS-0600307. Generally, materials and components shall be constructed of polymeric materials having an oxygen index of 28% or greater and a fire resistance characteristic equivalent to or better than Under Writers Laboratories (UL) standard UL 94 V-1. Cable and wire shall generally be listed for their purpose.

### **10.4. Protective Barriers**

Exposed nonmetallic equipment frame components such as protective covers, viewing panels, etc. shall comply with the ancillary materials requirements of ATIS-0600307 Fire Spread.

#### **A) All – Compliance Reviews**

- a. Carrier Grade Equipment application: Shall comply with the appropriate fire spread performance criteria provided in Telcordia GR-63-CORE.
- b. Non-Carrier Grade application: Equipment shall be listed by a Nationally Recognized Testing Laboratory (NRTL).
- c. OSP / Cell – Site application: Equipment for Class 2, 3 and 4 environments shall comply with the fire resistance criteria of Telcordia GR-3108-CORE, Section 6.5.

## 10.5. *Fire Test Video*

In general, a fire test video is **not required** as part of the test report submittals. However, a fire test video may be required when the documented test results as provided by the Testing Lab are incomplete or inconclusive to make a reasonable evaluation of the product compatibility with the GR-63-CORE requirements.

## 11. Spatial

A. Carrier Grade Equipment installed in **Carrier Communications Space** shall meet the following requirements.

### 11.1. *General*

This part provides the physical requirements for equipment units, and equipment systems intended for use in indoor network equipment areas. This part does not apply to power equipment or office distributing frames, and is not applicable to equipment intended solely for use in outdoor equipment enclosures, or controlled environment vaults. The equipment covered would typically be rack mounted in two or four post framework intended for environmentally controlled environments. The equipment framework if provided by the equipment manufacturer shall be approved by AT&T and in conformance to AT&T performance and dimensional requirements.

**Form ESP-001 and/or ESP-002, physical data and engineering data shall be completed to include dimensional and weight data on equipment covered in this section.**

### 11.2. *Equipment System*

The word **system** as used in this part refers to multi-unit and multi-frame equipment configurations that collectively perform one or more telecommunications or data management functions. System equipment is normally furnished preinstalled in one or more equipment framework assemblies.

### 11.3. *Equipment Unit*

The term equipment **unit** as used in this part refers to stand alone products that are generally field mounted by equipment users. An equipment unit may also be known as a shelf, card cage, chassis or apparatus as defined in ATIS documents. The unit will basically be a mechanical structure designed specifically to support associated electrical and electronic components. The unit shall be designed for vertical rack mounted in two or four post frameworks of industry standard widths.

#### 11.4. *Framework and Equipment Requirements*

##### **A. Equipment and framework intended for legacy environments of two post framework lineups:**

- a. Framework shall be designed for freestanding configuration not requiring overhead support with maximum height of 7'-0". Framework base shall have provisions for floor anchoring of anchor hardware up to 18mm diameter and capabilities for repositioning anchors at minimum of 1" to avoid rebar. AT&T requirements require all framework to be designed and tested for Zone 4 service.
- b. Equipment unit shall be designed for 23" or 19" nominal width mounting and fit within uprights of a standard 23" width framework. Where 19" equipment is provided, mounting adapters shall be provided for installation in 23" width framework. (Limited applications of 19" nominal width framework are used and, if designated, equipment shall be designed to fit within 17-1/4" clearance between frame uprights.)
- c. Framework should not exceed 2'-6" in overall width.
- d. In legacy transport environments equipment and framework should **not** exceed 15" in depth when adding to existing lineups.
- e. In newer technology lineups equipment and framework shall **not** exceed 24" in depth.
- f. Should facilitate a nominal rear aisle of 2' 6" or greater and a nominal front aisle of 3' 0" or greater for equipment installation and maintenance purposes.
- g. Where product requires additional cabling space adjacent to equipment framework, designate on form ESP-001 and/or ESP-002 under Engineering Data, Additional Space Requirements.

##### **B. Equipment intended for four post framework installation lineups:**

- A.** Framework shall be designed for freestanding configuration not requiring overhead support with maximum height of 7'-0". Framework base shall have provisions for floor anchoring of anchor hardware up to 18mm diameter and capabilities for repositioning anchors at minimum of 1" to avoid rebar. AT&T requirements require all framework to be designed and tested for Zone 4 service.
- B.** Equipment unit shall be designed for 23" or 19" nominal width mounting and fit within uprights of a standard 23" width framework. Where 19" equipment is provided, mounting adapters shall be provided for installation in 23" width mounting rail configuration.
- C.** Framework width shall be designed for maximum 30" width.
- D.** Framework depth shall be designed for 24" to 36" depth.

- E. Doors, slide drawers should not require more than 30 inches space into aisles to use.
- F. Four post framework shall allow for room ventilation air to freely enter and exit enclosure. Doors, side panels, blanking panels and top panels shall be designed for controlled front to rear air flow if provided.

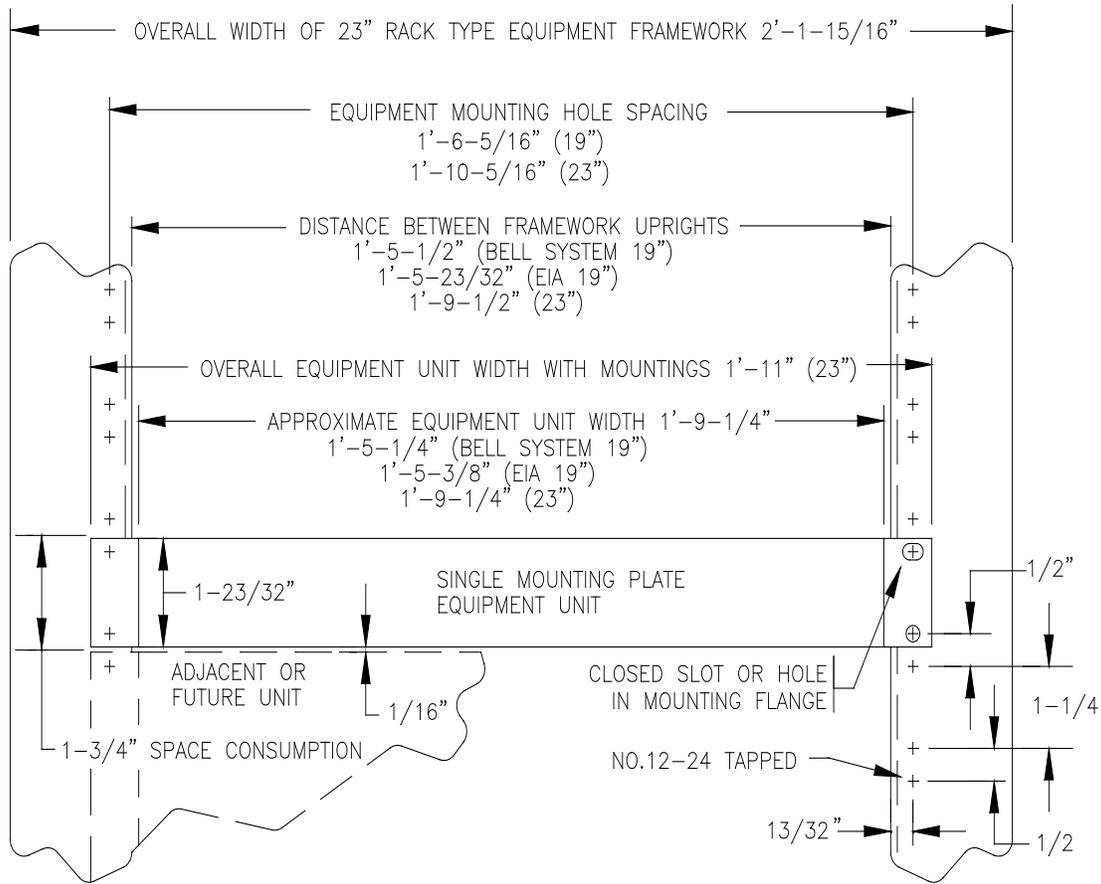
### 11.5. *Equipment Floor Loading*

An individual framework loaded with equipment shall be designed and constructed to floor load requirements of less than 560 kg/m<sup>2</sup> (114.7 lb./ft<sup>2</sup>). The floor loading for an equipment framework is calculated by dividing the frame weight by the area of a rectangle bounded by the extended frame sides and half of the front (3 ft -0 in. or 18 in) and half of the rear (2 ft.-6 in. or 15 in.) aisles. The standard framework footprint to be used in AT&T calculations would be 26 in. wide and 24" deep. For four post frameworks use footprint dimension of framework and same front and rear aisle dimensions. Total weight of equipment should include all cables that may be required in normal field installation.

### 11.6. *Equipment Units*

Equipment units:

- A. Shall be designed so they are installed from the front and cabled from the rear of equipment framework assemblies,
- B. Shall incorporate the use of holes or closed slots in mounting hardware for attachment to equipment framework mounting surfaces, and be designed for 23" nominal width framework,
- C. Shall accommodate mounting in equipment frameworks using the 1-3/4 x 23 inch mounting hole pattern shown in Figure 11-1, and
- D. Limited applications of products that will not permit rear access will require that equipment be designed strictly for front access where cabling, maintenance and normal service be performed from front only. These products shall be designed for front access and indicated on form **ESP-001** and/or **ESP-002**, **Engineering Data, Equipment Locating Restrictions** as **YES**, "**Front Access Only**". Only those products intended for limited applications such as CEV installations, ETSI compliant products or other AT&T authorized use shall be designed for front access.



**Figure 11 -1 - Commonly Referenced Equipment Spatial Considerations**

**Carrier Grade Equipment** installed in **Network Equipment Space** shall meet the following requirements.

## 12. Physical Design and Manufacturing Requirements

### 12.1. Physical Design and Manufacturing

- A. Vendor shall comply with the hazardous substances provisions contained in AT&T contract managed by procurement.
- B. Equipment intended for use by AT&T outside of the United States shall meet Restriction of Hazardous Substances Standards that are applicable for use within the country it is deployed.
- C. It is an objective that equipment manufacturing complies to Telcordia GR-78-CORE.

### 12.2. PB-free Solder Joint Reliability

This section is intended to identify Solder Joint Reliability (SJR) requirements for equipment manufactured with PB solder per ATIS-0600019 and ATIS-0600020 standards. These standards apply to electrical and electronics products, including, but not limited to telecommunications equipment, sold to AT&T.

Manufacturer shall complete Pb-Free Solder Declaration (PbF Form) paragraph 15.16, and forward to AT&T.

Per Telcordia Notice to the Industry, November 2006, Reliability Concerns with the use of Lead (Pb) Free Solder in Telecommunications Products and other sources there is continuing concern regarding the use of RoHS 6 compliant equipment for telecommunications applications that require long life and high reliability. RoHS compliant equipment and equipment components proposed for deployment in AT&T network shall need to demonstrate reliability of solder joints equal to or greater than that of RoHS 5 equipment.

Demonstration of reliability shall include:

1. Pb free sub-assembly modules (e.g., hard drives, PCI cards, transceivers, etc.) shall demonstrate compliance to ATIS standard *Test Requirements for Pb-Free Subassembly Modules* ATIS-0600019.

**Vendor shall complete and return the checklist contained in Section 4.3 of the ATIS document.**

Note: Pb-free SFP/XFP type modules are considered compliant to requirement and do not need to be submitted for review.

2. Pb free assemblies (e.g., circuit boards, etc.) shall demonstrate compliance to the ANSI standard *Guideline for Pb-Free Assembly Qualification and Test Requirements for*

*Printed Wiring Board Assemblies*, ATIS-0600020. Vendor shall complete and return the checklist contained in Section 4.3 of the ATIS document<sup>1</sup>.

3. Copies of test reports for ATIS standards,
4. All reliability and failure rate information (e.g. FIT data) for the product for all previous and existing deployments regardless of service provider or geography.
5. Pb-free soldered equipment will be evaluated for approval by AT&T on a case-by-case basis weighing compliance to the above requirements and other risk factors. For example, deployment in an OSP/CELL-SITE environment, use of large high strain components (e.g. ceramic BGAs), etc. indicate a higher risk of solder joint failure for RoHS 6 equipment, while small plug-in sub-assembly components may pose lower reliability risks.
6. A Solder Joint Reliability Letter of Attestation verifying compliance to ATIS standards may be submitted in lieu of the above information. See Appendix A, 16.11. NOTE: The PCN process shall be used for all transitions of existing lead/tin soldered equipment to Pb-free.

## **13. Energy Efficiency Testing Requirements**

### **13.1. Purpose**

The purpose of this Section is to establish energy efficiency testing and reporting requirements based on standards developed and published by ATIS as ANSI standards. This is a suite of equipment specific documents based on the General Requirements Standard. At the present time there are four equipment standards in effect:

- ATIS-0600015.01.2009, Servers
- ATIS-0600015.02.2009, Transport
- ATIS-0600015.03.2009, Routers and Ethernet Switches
- ATIS-0600015.04.2010, Power Systems Rectifiers
- ATIS-0600015.06.2011, Radio Base Stations

### **13.2. ATIS Energy Efficiency Standards**

ATIS-0600015.2009, Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting General Requirements establishes the test methodology, environmental factors and utilization of the equipment for measuring the energy used in the formation of the Telecommunications Energy Efficiency Ratio (TEER). The procedures shall be applied in a controlled laboratory environment. Testing is to be performed at a third party test laboratory or by a representative from a company that operates an accredited test

laboratory. The supplier may also provide additional data for configurations different from those tested by the third party test laboratory.

### 13.3. Telecommunications Energy Efficiency Ratio

The following guidelines will be followed when defining TEER for equipment:

- The scale will be fully defined in the supplemental standards such that typical TEER values range from 1 to 1000.
- The higher the TEER value, the more energy efficient the equipment is compared to other like equipment.
- The supplemental standard will define the TEER calculation details.

TEER is the ratio of useful work over energy consumed,  $TEER = \frac{UsefulWork}{P_{TEER}}$ .

### 13.4. Application

The standards will be used to establish baselines for minimum acceptable energy efficiency of network elements. In addition to the General Requirements, the supplemental standards shall be used to create Telecommunication Energy Efficiency Ratios (TEER) by equipment type.

The equipment types are currently categorized as Core, Transport, Access, CPE, and Power Systems based on application and location in the network.

### 13.5. Standards Development

At the time of this issue, ATIS has several standards at various stages of development ranging from final editing, draft for review, to draft preparation. As ATIS publishes these and subsequent supplemental energy efficiency standards they shall be adopted first as objectives and finally as requirements in revisions of this Technical Publication.

### 13.6. Energy Efficiency Report

An Energy Efficiency Report shall be included in any new product evaluation for Carrier Grade Level 3. A sample TEER reporting form is available from ATIS-0600015.2009. In addition to this form, data as required for the specific equipment types covered by ATIS-0600015.01-.04 shall also be reported.

## 14. Outside Plant/Cell Site Deployment Configurations and Enclosures

### 14.1. Deployment Configurations

The configuration of equipment deployed in OSP/CELL-SITE cabinets shall be approved by OSP/CELL-SITE staff prior to approval. OSP/CELL-SITE contact:

Jason Neal  
2600 Camino Ramon  
San Ramon CA, 94583 Phone: (925)823-2736  
e-mail: jn6729@Att.com

### 14.2. *OSP/CELL-SITE Enclosure*

Reference the **ATT-TP-76205 AT&T Electronic Equipment Enclosure / Cabinet (EEE/C) Standard for applicable requirement and process.**  
( <https://ebiznet.sbc.com/sbcnebs/> )

This section does not cover Huts and CEVs. For verification of test requirements for OSP/CELL-SITE cabinets and other enclosures contact Jason Neal at (925) 823-2736.

## 15. Equipment Information Form Description

### 15.1. *General*

This section includes equipment information forms to help suppliers communicate equipment information in a way that will facilitate the equipment evaluation process. These equipment information forms may be reproduced as necessary. The equipment information forms shall be completed and provided for new equipment and for enhanced equipment already approved for use in AT&T.

### 15.2. *ESR Form Description*

The ESR *Equipment Supplier Requirements Checklist* forms are provided so equipment suppliers can have a checklist of requirements for each level of conformance.

**An ESR form is no longer required for AT&T TP-76200 Evaluation as part of the documentation package.**

### 15.3. *ESP Form Description*

The engineering and space planning forms provide a detailed overview of the planning and engineering considerations associated with products being evaluated. *System*

*Equipment* form ESP-001 applies to products comprised of multiple equipment units installed in a predefined configuration. Such products may be furnished preinstalled in an equipment framework assembly (frame level) or as shelf level products (individual units) for installation into existing equipment framework assemblies. *Equipment Unit* form ESP-002 applies to stand-alone shelf level products.

Suppliers shall complete an ESP-001 form for frame level products, each frame of multi-frame products, and for shelf level products that are optionally available preinstalled in an equipment framework assembly. The ESP-002 form shall be completed for individual shelf level products.

#### 15.4. ***FRM Form Description***

Form FRM-001 *Fire Resistance of Materials* shall be completed by the product supplier's representative having explicit knowledge of the subject addressed. The FRM form may be used for multi-unit products provided each individual unit comprising the product is specifically referenced in the space provided.

#### 15.5. ***PbF Form Description***

Form PbF, shall be completed by equipment supplier's representative having explicit knowledge of the subject addressed. The PbF Form may be used for multi-unit products provided each individual unit comprising the equipment is specifically referenced in the space provided.

#### 15.6. ***RF Transmitter Form Description***

Form RFTX, *Radio Frequency Transmitting Device Characteristics*, shall be completed by a product supplier's representative with explicit knowledge of the RF characteristics of any device which transmits RF energy. See Section 1.9 and 2.3.C for criteria to determine when this form is required. Complete one form for each unique transmitter and radiator (antenna) combination, or optionally provide tabulated information as an attachment if several transmission devices are involved. Reproduce Form RFTX as needed. Provide attachments from the manufacturer or an accredited testing laboratory (see Section 1.12) documenting the RF emissions levels stated.

### **Equipment Information Forms:**

**NOTE:** See following pages:

15.7. ESP-001 Form

**EQUIPMENT ENGINEERING & SPACE PLANNING DATA**

**Equipment Systems (1)**

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Equip. Functional Description and Nomenclature: \_\_\_\_\_

Floor Plan Designation: \_\_\_\_\_ Number of Frames Per System: \_\_\_\_\_

Names of Associated Frames: \_\_\_\_\_

**PHYSICAL DATA (2)**

Overall Dimensions Including Framework: Height: \_\_\_\_\_ Width (3): \_\_\_\_\_ Depth: \_\_\_\_\_

Equipment Weight: -Approximate Installed Weight (fully equipped) \_\_\_\_\_ lbs \_\_\_\_\_ lbs.

**ENGINEERING DATA (2)**

Framework Type/Description: \_\_\_\_\_

Manufacturer's Identifying Catalog/Part Number: \_\_\_\_\_

Minimum Aisle Spacing Requirements: Front: \_\_\_\_\_ Rear: \_\_\_\_\_

Additional Space Requirements, if applicable, Between This Frame and An:

Adjacent Like Frame: \_\_\_\_\_ End Guard: \_\_\_\_\_ Other Frames or Structure: \_\_\_\_\_

Equipment Locating Restrictions: None \_\_\_\_\_ Yes (Explain): \_\_\_\_\_

120 V ac Required: Yes: \_\_\_\_\_ No: \_\_\_\_\_ Circuit Breaker Size per feeder: \_\_\_\_\_

Number of feeders: \_\_\_\_\_ -48 V DC Required: Yes: \_\_\_\_\_ No: \_\_\_\_\_

Feeder 1 (Load A): List 1 drain: \_\_\_\_\_ amps at \_\_\_\_\_ V  
List 2 drain: \_\_\_\_\_ amps at 42.6V  
List 2X drain \_\_\_\_\_ amps at 42.6V

Feeder 2(Load B): List 1 drain: \_\_\_\_\_ amps at \_\_\_\_\_ V  
List 2 drain: \_\_\_\_\_ amps at 42.6V  
List 2X drain \_\_\_\_\_ amps at 42.6V

(List 2X is defined in ATT-TP-76450)

Minimum Operating Voltage \_\_\_\_\_ and current \_\_\_\_\_ from test in Section 7.3

DC-C \_\_\_\_\_ or DC-I \_\_\_\_\_ configuration per section 9.8.3 of GR-1089-CORE,

**EXTERNAL CABLING DATA**

Equipment Cabling Plan Reference/Drawing  
Number: \_\_\_\_\_

Do Special Cable Or Cabling Requirements Apply: No \_\_\_\_\_ Yes \_\_\_\_\_ (Describe):

- (1) One form required per each frame of multi-frame system equipment.
- (2) All dimensions to be expressed in FEET and INCHES.
- (3) Width includes normal 1/16 inch space between adjacent frames



- If the typical AT&T units deployed are unavailable, indicate the maximum number followed by a hyphen and the letter "U" for unknown. (e.g. 4-U)
- 5) **C: Maximum** possible is the maximum heat dissipation **PER UNIT** in Watts at full operating parameters (i.e., 100% full load/traffic)
- This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured calculated heat dissipation from a fully loaded, in operation part or system.
- 6) **D: Nominal** is the heat dissipation **PER UNIT** in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
- This entry is the Nominal (normal operating range) measured / calculated heat dissipation from a typical AT&T loaded, in operation part or system.
- 7) **E: Maximum** possible is the maximum heat dissipation **TOTAL** (# Units X Unit Heat) in Watts at full operating parameters (i.e., 100% traffic)
- This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured / calculated heat dissipation from a fully loaded, in operation part or system.
- 8) **F: Nominal** is the heat dissipation **TOTAL** (# Units X Unit Heat) in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
- This entry is the Nominal (normal operating range) measured / calculated heat from a typical AT&T loaded, in operation part or system.

15.8. **ESP-002 Form**

ENGINEERING & SPACE PLANNING EQUIPMENT DATA  
**Shelf Level Equipment Units (1)**

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Unit Functional Description: \_\_\_\_\_

Product ID: \_\_\_\_\_ Nomenclature (Acronym): \_\_\_\_\_

Names of Associated Units per Function: \_\_\_\_\_

**EQUIPMENT DATA**

Overall Dimensions (inches): Height: \_\_\_\_\_ Depth (2): \_\_\_\_\_ Width: \_\_\_\_\_

Unit Weight: Unit Installed Weight (fully equipped) \_\_\_\_\_ lbs

Minimum Aisle Spacing Requirements (feet & inches): Front: \_\_\_\_\_ Rear: \_\_\_\_\_

Requires 120 V ac: Yes \_\_\_\_\_ No \_\_\_\_\_ Circuit Breaker Size per feeder: \_\_\_\_\_

Number of feeders: \_\_\_\_\_ -48 V DC: Yes: \_\_\_\_\_ No: \_\_\_\_\_

Feeder 1 (Load A): List 1 drain: \_\_\_\_\_ amps at \_\_\_\_\_ V  
List 2 drain: \_\_\_\_\_ amps at 42.6V  
List 2X drain \_\_\_\_\_ amps at 42.6V

Feeder 2(Load B): List 1 drain: \_\_\_\_\_ amps at \_\_\_\_\_ V  
List 2 drain: \_\_\_\_\_ amps at 42.6V  
List 2X drain \_\_\_\_\_ amps at 42.6V

(List 2X is defined in ATT-TP-76450)

Minimum Operating Voltage \_\_\_\_\_ and current \_\_\_\_\_ from test in Section 7.3

DC-C \_\_\_\_\_ or DC-I \_\_\_\_\_ configuration per section 9.8.3 of GR-1089-CORE

Heat Baffles Required: Yes \_\_\_\_\_ No \_\_\_\_\_ If Yes, Supplied With Unit: Yes \_\_\_\_\_ No \_\_\_\_\_

**UNIT TO FRAMEWORK MOUNTING DATA**

Supported Mounting Flange Hole Patterns: 1 3/4 x 19" \_\_\_\_\_ 1 3/4 x 23" \_\_\_\_\_ 2 x 23" \_\_\_\_\_

Unit Mounts to Front of Framework Uprights: Yes \_\_\_\_\_ No \_\_\_\_\_

List Unit Locating Restrictions/Considerations if Any: \_\_\_\_\_

Distance Unit Extends From Framework Mounting Surface: \_\_\_\_\_ (in.)

**EXTERNAL CABLING DATA**

Unit Cabling Plan Reference/Drawing Number: \_\_\_\_\_

Unit Is Cabled From The Rear: Yes \_\_\_\_\_ No \_\_\_\_\_ Front and Rear: \_\_\_\_\_

Required Alarm Leads and Designations: \_\_\_\_\_

Do Special Cable Or Cabling Requirements Apply: No \_\_\_\_\_ Yes \_\_\_\_\_ (Describe):

- (1) One form required per each unit of a multi-unit product/system.
- (2) Overall depth includes cable and its supporting apparatus.



- 5) **C: Maximum** possible is the maximum heat dissipation **PER UNIT** in Watts at full operating parameters (i.e., 100% full load/traffic)
  - This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured calculated heat dissipation from a fully loaded, in operation part or system.
- 6) **D: Nominal** is the heat dissipation **PER UNIT** in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
  - This entry is the Nominal (normal operating range) measured / calculated heat dissipation from a typical AT&T loaded, in operation part or system.
- 7) **E: Maximum** possible is the maximum heat dissipation **TOTAL** (# Units X Unit Heat) in Watts at full operating parameters (i.e., 100% traffic)
  - This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured / calculated heat dissipation from a fully loaded, in operation part or system.
- 8) **F: Nominal** is the heat dissipation **TOTAL** (# Units X Unit Heat) in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
  - This entry is the Nominal (normal operating range) measured / calculated heat from a typical AT&T loaded, in operation part or system.

15.9.ESR-001 (CG Level 1)

**Carrier Grade Level 1**

ATT-TP-76200 Minimum Safety Requirements for Carrier Grade Equipment Deployed Indoors

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Carrier Grade (CG) DEPLOYMENT			
<b>2. GR-1089 Electromagnetic Compatibility &amp; Electrical Safety Requirements: * Note The requirement numbers below are the GR1089 Absolute Requirement Numbers. See GR1089, Paragraph 1.4.1</b>			
R #	Description	R #	Description
N/A	Equipment Type	56	Class A3 Voltage
8	Radiated Emissions	57	Class A3 segregtd
9	Radiated Emissions Obj.	58	Class A3 Labeled
10	Radiated Emissions	59	Class AB restricted
12	Conducted Emissions	60	Class AB inaccess.
13	Conducted Common Mode Emiss.into Low-voltage	61	Rubber gloves
128	Conducted Common Mode Emiss.from EUT into signal leads	62	Eqpt pwr'd by gen...
22	Listing AC Power	63	Class B de-energzd
23	Listing Inverters	64	Interrupted/tripped v
24	Listing Cust Prem Equip	65	Voltage interrupted
25	EUT damage	66	Int./Tripped include
29	EUT Safety Hazard	67	Peak Voltage
33	EUT Safety Hazard	68	Sources Com. Wire
36	EUT Safety Hazard	69	Current - 100cm
40	EUT Safety Hazard	70	Current - 1cm
41	EUT not meet require	71	Current measured
54	Class A1 Voltage	115	Continuous Source Volt
55	Class A2 Voltage		
<b>Other ATT-TP-76200 Requirements:</b>		<b>9. Shock and Vibration</b>	
2.3C	RF Transmission Devices	9.6	Standard Frames
2.10	Surge Protection Devices		
<b>3 Acoustic Noise</b>		<b>10. Fire Resistance</b>	
3	ATT-TP-76200 Section 3.A	10.4	Material Components.
<b>5. Grounding *</b>		10.5	Panels/Barriers
5.0	GR-1089, Section 9	10.5A	Fire Spread
<b>6. Thermal</b>		Completed FRM-001 Form	
<b>6.4 Heat Dissipation</b>			
6.4.D.1	Heat Dissip. Data <sup>1</sup>		
6.6.A.1	Fan forced		
6.6.A.1	Flow front to back		
6.6.A.1	Face Temperature		

\* NRTL Listing and FCC Part 15 may be considered in lieu of these requirements

1. Use appropriate ESP form to report this information.
2. The Acoustic Noise requirements for Carrier Grade Level 3 may be used in lieu of the requirements in Section 3 above if desired.

15.10. ESR-001-(OSP/CELL-SITE Level 1)

Outside Plant/Cell Site Level 1

ATT-TP-76200 Minimum Safety Requirements:  
Carrier Grade Equipment located in Outside Plant Cabinets and Enclosures

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Outside Plant/Cell Site Electronics									
<b>2. GR-1089 Electromagnetic Compatibility &amp; Electrical Safety Requirements * : Note The requirement numbers below are the GR1089 Absolute Requirement Numbers. See GR1089, Paragraph 1.4.1</b>									
R #	Description					R #	Description		
N/A	Equipment Type					54	Class A1 Voltage		
8	Radiated Emissions					55	Class A2 Voltage		
10	Radiated Emissions					56	Class A3 Voltage		
11	Radiated Emissions					57	Class A3 segregtd		
12	Conducted Emissions					58	Class A3 Labeled		
13	Conducted Common Mode Emiss.into Low-voltage.					59	Class AB restricted		
128	Conducted Common Common Mode Emiss.from EUT into signal leads					60	Class AB inaccess.		
22	Listing AC Power					61	Rubber gloves ...		
22	Listing AC Power					62	Eqpt pwr by gen.		
23	Listing Inverters					63	Class B de-energzd		
24	Listng Cust Prem Equip					64	Interrupted/tripped v.		
25	EUT damage					65	Voltage interrupted		
29	EUT Safety Hazard					66	Int./Tripped include		
33	EUT Safety Hazard					67	Peak Voltage		
36	EUT Safety Hazard					68	Sources Com. Wire		
40	EUT Safety Hazard					69	Current - 100cm		
41	EUT not meet require.					70	Current - 1cm		
						71	Current measured		
						115	Continuous Source Volt		
<b>Other Applicable ATT-TP-76200 Level 1 Requirements:</b>									
2.3 C	RF Transmission Devices								
2.10	Surge Protection Devices								
<b>5. Grounding *</b>					<b>10. Fire Resistance *</b>				
5.0	GR-1089, Section 9					10.6C	GR-3108, Section 6.4.		
<b>6. Thermal</b>					Completed FRM-001 Form				
<b>6.4. Heat Dissipation</b>									
6.4.D.1	OSP Heat Dissip. (GR-3108)								
6.6.A.2	Forced Air Cooled								
6.6.A.2	Flow F-R or B-T								
6.6.A.2	Face Temperature								
<b>Note: Closure or Cabinet may require an ATT-TP76205 Evaluation. See Section 14</b>									

\* Note: Compliance to NRTL Listing and FCC Part 15 may be accepted in lieu of these requirements.

- Communication Equipment Placed at Customer Prem Requires LISTING

15.11. **ESR-003-(CG Level 3)**

**Carrier Grade Equipment Level 3**  
**ATT-TP-76200 Safety and Operability Requirements Carrier Grade Equipment Deployed Indoors**

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Item	Reference	Item	Reference
<b>2 Electromagnetic Compatibility/Electrical Safety</b>		<b>7 DC Power</b>	
2.2	Equipment Type	7.2	Under voltage
2.3	Rad. Emission	7.3	Min. Operating V*
2.3C	RF Transmitting Dvcs	7.4	Current Drain*
2.4	Cond. Emission	7.5	Over voltage
2.5	Immunity	7.6	Over voltage transient
2.6	Lightning/AC Pwr.	7.7	Protective Device trans
2.7	Steady State Pwr.	7.8	Electrical Noise
2.8	Electrical Safety		
2.9	DC Potential		
2.10	Surge Protection Devices		
		<b>8 Airborne Contaminants</b>	
		8.1	Indoor, GR-63
		8.3	Fan Filters
		<b>9 Shock and Vibration</b>	
		9.1	Transport
		9.2	Vibration
		9.3	Earthquake
		9.4	Positive Latching
		9.5	Hard Drive Backup
		9.6	Standard Frames
		9.7	Self Support Frame
		9.8A	Office Vibration, Indoor
		9.9	Floor Loading
		<b>10 Fire Resistance</b>	
		10.4	Material Components
		10.5	Protective Barriers
		10.5a	Fire Spread
		Completed FRM-001 Form	
		<b>11 Spatial</b>	
		11.4	Equipment and Framework
		11.5	Equipment Loading
		11.6	Equipment Units
		<b>12 Physical Design and Manufacturing</b>	
		12.1	GR-78
		12.2	Pb-free Solder: SJR
		13.6	Energy Efficiency Report
<b>3 Acoustic Noise</b>			
3.A1	Meet GR-63		
Note: Must comply with GR 63 Table 4-8 for equipment located in an attended room, i.e. 78 LWAd (dB)			
<b>4 Electrostatic Discharge &amp; Fast Transient</b>			
4.1	GR-1089, Sec 2.1.2		
4.2	GR-1089, Sec 2.1.2.4		
4.3	GR-1089, Sec 2.2		
<b>5 Grounding</b>			
5.1	GR-1089, Section 9		
<b>6 Thermal</b>			
<b>6.1 Temperature and Humidity</b>			
6.1A	Indoor, GR-63		
<b>6.2 Altitude</b>			
6.2A	Indoor GR-63		
<b>6.4. Heat Dissipation</b>			
6.4.D.1	Heat Dissip. Data*		
6.6.B.1	Fan forced		
6.6.B.1	Flow front to back		
6.5.A.1	Face Temperature		

\* Use appropriate ESP form to report this information.

15.12. ESR-003-(NCG Level 3 and Level 1)

**Non-Carrier Grade Equipment L3 (top section) L1 (lower section)**

ATT-TP-76200 Requirements for Non-Carrier Grade Equipment not deployed in Carrier Communications Spaces

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Non Carrier Grade (NCG) Level Three									
Item	Reference				Item	Reference			
<b>2 Electromagnetic Compatibility/Electrical Safety</b>					<b>7 DC Power (if applicable)</b>				
2.2	Equipment Type				7.2	Under voltage			
2.3	Rad. Emission				7.3	Min. Operating V*			
2.3.C	RF Transmission Dvcs.				7.4	Current Drain*			
2.4	Cond. Emission				7.5	Over voltage			
2.5	Immunity				7.6	Over voltage transient			
2.6	Lightning/AC Pwr.				7.7	Protective Device trans			
2.7	Steady State Pwr.				7.8	Electrical Noise			
2.8	Electrical Safety				<b>8 Airborne Contaminants</b>				
2.8	NRTL Listing (required)				8.1	Indoor, GR-63			
2.9	DC Potential				8.3	Fan Filters			
2.10	Surge Protection Devices				<b>9 Shock and Vibration</b>				
<b>3 Acoustic Noise</b>					9.1	Transport			
3.A.I	Meet GR-63				9.2	Vibration			
					9.3	Earthquake			
<b>4 Electrostatic Discharge &amp; Fast Transient</b>					9.4	Positive Latching			
4.1	GR-1089, Sec 2.1.2				9.5	Hard Drive Backup			
4.2	GR-1089, Sec 2.1.2.4				9.6	Standard Frames			
4.3	GR-1089, Sec 2.2				9.7	Self Support Frame			
					9.8A	Office Vibration, Indoor			
					9.8B	Office Vibration, OSP/CELL-SITE			
<b>5 Grounding</b>					9.9	Floor Loading			
5.1	GR-1089, Section 9				<b>10 Fire Resistance</b>				
<b>6 Thermal</b>					10.4	Materials & Comp.			
<b>6.1 Temperature and Humidity</b>									
6.1A	Indoor, GR-63				<b>12 Physical Design and Manufacturing</b>				
<b>6.2 Altitude</b>					12.1	GR-78			
6.2A	Indoor GR-63				12.2	Pb-free Solder: SJR			
<b>6.4. Heat Dissipation</b>									
6.6.A.1	Heat Dissip. Data <sup>2</sup>								
6.6.B.2	Fan forced								
6.6.B.2	Flow front to back								
6.5.A.1	Face Temperature								
<b>Non-Carrier Grade (NCG) Level One</b>									
<b>Description</b>					<b>Description</b>				
NRTL listing					FCC Part 15 <sup>2</sup>				
*2.3.C RF Trans if applicable									

- Non Carrier Grade Level 1 Requires NRTL Listing, FCC part 15, Data Sheet and \*RFTX form if RF Device.

15.13. **ESR-003-OSP/CELL-SITE (Level 3)**

**Outside Plant/Cell Site Level 3**

**ATT-TP-76200 Requirements for Electronic Equipment Deployed in Outside Plant**

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

CLASS 2 & 3 & 4 <sup>1</sup> OSP/CELL-SITE ELECTRICAL COMPONENT REQUIREMENTS <sup>2</sup>									
Item	Reference				Item	Reference			
<b>2 Electromagnetic Compatibility/Electrical Safety</b>					<b>7 DC Power</b>				
2.2	Equipment Type				7.2	Under voltage			
2.3	Rad. Emission				7.3	Min. Operating V*			
2.3 C	RF Transmissions Dvcs				7.4	Current Drain			
2.4	Cond. Emission				7.5	Over voltage *			
2.5	Immunity				7.6	Over voltage transient			
2.6	Lightning/AC Pwr.				7.7	Protective Device trans			
2.7	Steady State Pwr.				7.8	Electrical Noise			
2.8	Electrical Safety								
2.9	DC Potential								
2.10	Surge Protection Devices								
<b>3 Acoustic Noise</b>					<b>8 Airborne Contaminants</b>				
3B	GR-3108 Section 6.5				8.2 A	GR-63 R4-100, Section 4.5.1.1			
<b>4 Electrostatic Discharge &amp; Fast Transient</b>					8.2 B	GR-3108, Section 6.3			
4.1	GR-1089 Section 2				8.3	Fan filters			
<b>5 Grounding</b>					<b>9 Shock and Vibration</b>				
5.1	GR-1089, Section 9				9.1 B	Transport & Handling			
<b>6 Thermal</b>					9.2	Vibration			
<b>6.2 Temperature and Humidity (pick applicable rqmt)</b>					9.3	Earthquake			
6.2B.2	GR-3108, Section 44				9.4	Positive Latching			
<b>6.3 Altitude</b>					9.5	Hard Drive Backup			
6.3.B.2	GR-3108- Section 4.7				9.8B	Field Vibration, OSP/CELL-SITE			
<b>6.4. Heat Dissipation</b>					<b>10 Fire Resistance</b>				
6.4.D.1	Heat Dissip. Data <sup>3</sup>				10.5C	GR-3108, Section 6.4.			
6.6.B.2	Fan forced				<b>12 Physical Design and Manufacturing</b>				
6.6.B.2	Flow front to back				12.1	GR-78			
6.5.A.2	Face Temperature				12.2	Pb-free Solder:SJR			
					13.6	Energy Efficiency Report			
<b>OSP/CELL-SITE ENCLOSURES See ATT-TP-76200 Section 14</b>									

1. Equipment must conform to requirements applicable to Class of Environment intended for deployment  
 2. Equipment intended for deployment in both CO and OSP/CELL-SITE locations must be compliant to both Level 3 CO & OSP/CELL-SITE requirements  
 3. Use appropriate ESP form to report this information.  
**NOTE:** The configuration of equipment deployed in OSP/CELL-SITE cabinets must be approved by OSP/CELL-SITE staff prior to approval for use. See paragraph 14.1 of this document.  
 4. Communication Equipment Placed at Customer Prem Requires LISTING

15.14. **ESR\_ANC**

**Ancillary Equipment Level 1<sup>1</sup> and Level 3 ATT-TP-76200 Requirements**

Manufacturer: \_\_\_\_\_ Product Name: \_\_\_\_\_ Date: \_\_\_\_\_

Item	Reference	Item	Reference
<b>2. Electromagnetic Compatibility/Electrical Safety</b>		<b>7. DC Power</b>	
2.2	Equipment Type	7.2	Under voltage
2.3	Rad. Emission	7.3	Min. Operating V*
2.3.C	RF Transmission Dvcs	7.4	Current Drain*
2.4	Cond. Emission.	7.5	Over voltage
2.5	Immunity	7.6	Over voltage transient
2.6	Lightning/AC Pwr	7.7	Protective Device trans
2.6	Fault Testing	7.8	Noise Immunity
2.7	Steady State Pwr	<b>8. Airborne Contaminants</b>	
2.8	Electrical Safety.	8.1	Indoor, GR-63
		8.2	OSP/CELL-SITE , GR-3108
		<b>9. Shock and Vibration</b>	
		9.2	Vibration
<b>4. Electrostatic Discharge</b>		9.3	Earthquake
4.1	GR-1089, Sec 2.1.2	9.8	Office Vibration
4.2	GR-1089, Sec 2.1.2.4		
4.3	GR-1089, Sec 2.2	<b>10. Fire Resistance</b>	
		10.4	Materials & Comp.
<b>5. Grounding</b>		10.5	Protective Barriers
5.1	DC Short Circuit	10.5	Fire Spread
5.1	AC Short Circuit	Completed FRM-001 Form	
<b>6. Thermal</b>		<b>12 Physical Design and Manufacturing</b>	
<b>6.2 Temperature and Humidity</b>		12.1	GR-78
6.2	Indoor, GR-63	12.2	Pb-free Solder:SJR
6.2	OSP/CELL-SITE , GR-3108		
		NOTE: Some tests may not be required if circuit packs can be demonstrated to be similar to original circuit packs in construction. See Appendix B.	
<b>6.4 Heat Dissipation</b>			
6.4.D.1	Heat Dissip. Data <sup>1</sup>		
6.6	Fan forced		
6.6	Flow front to back		
6.5.A	Face Temperature		

1. Use appropriate ESP form to report heat dissipation

15.15. *FRM-001 Form*

**DECLARATION OF FIRE RESISTANCE OF MATERIALS**

Manufacturer:\_\_\_\_\_ Equipment Name:\_\_\_\_\_ Date:\_\_\_\_\_

This statement of compliance applies to the following product(s) which are being considered for purchase:

The below individual having reasonable control over the fire resistance characteristics of materials and components used in the construction and manufacture of the above product(s) assures that:

1. \_\_\_ All materials and components, except those listed below, meet the fire resistance requirements contained in the current issue of ANSI T1.307 *Fire Resistance Criteria - Part 1: Ignitability Requirements for Equipment Assemblies, and Fire Spread Requirements for Interconnection Wire and Cable Distribution Assemblies*.
2. \_\_\_ Products having an exposed surface area < ft.<sup>2</sup> (0.09 m<sup>2</sup>) shall be formed from materials having a fire resistance characteristic equivalent to or better than UL-94 V-0 at its minimum rated thickness (T1.307 section 4.4.1 a).
3. \_\_\_ Products having an exposed surface area >1 ft.<sup>2</sup> (0.09 m<sup>2</sup>) to 10 ft.<sup>2</sup> (0.93 m<sup>2</sup>) shall be formed from materials having a fire resistance characteristic equivalent to or better than UL-94 5VA at its minimum rated thickness (T1.307 section 4.4.1 b).
4. \_\_\_ Products having an exposed surface area >10 ft.<sup>2</sup> (0.93 m<sup>2</sup>) shall be formed from materials having a fire resistance characteristic equivalent to or better than UL-94 5VA at its minimum rated thickness, and shall have a flame spread rating of <200. Flame spread ratings may be determined by radiant panel test methods that are equivalent to those contained in UL standard 94, *Tests for flammability of plastic materials for parts in devices and appliances* or UL standard 723 *Test For Surface Burning Characteristics Of Building Materials* (T1.307section 4.4.1 c).
5. \_\_\_ Items 2, 3 and 4 are not applicable to the product(s).  
The below non-metallic components (other than LEDs, small cable ties and terminal lug insulators) do not or may not comply with Items 1 through 4 above. The combined weight of the listed components is \_\_\_\_\_ grams.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed name

\_\_\_\_\_  
Title

15.16. *PbF Form*

**Pb-Free Solder Declaration**

Supplier:

Equipment Name:

Equipment ID:

Nomenclature (Acronym):

Does the product contain PWBs or Components that are assembled with Pb-free solder?  
**YES**  **NO**

If **“Yes” is checked** Please provide all test results along with the Checklist as per ATTIS standards ATTIS 0600019 and ATTIS 0600020. Please refer back to Section 12 of ATT-TP-76200 for more information.

Does the product contain a mixture of Pb and Pb-free soldered components?  
**YES**  **NO**

If **“Yes” is checked** provide a complete list of all components that are Pb-free. Please provide all test results along with the Checklist as per ATTIS standards ATTIS 0600019 and ATTIS 0600020. Please refer back to Section 12 of TP76200 for more information.

**(Company name)** has caused this Letter of Declaration to be executed by its duly authorized representative as of the date written below.

By:

Title:

Date:

**NOTE:** This affidavit must be signed in front of a notary and notarized \_\_\_\_\_.

15.17. **RFTX Form**

**Radio Frequency Transmitting Device Characteristics**

Manufacturer: \_\_\_\_\_ Equipment Name: \_\_\_\_\_

Model or Part Number: \_\_\_\_\_ Options \_\_\_\_\_

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

Ref #	Characteristic	Values
1	Transmitted frequencies	
2	Maximum RF power output from each transmitter (hardware Limitation) in the maximum power configuration	
3	Maximum radiator/antenna gain for all formats used (dBi)	
4	Maximum Effective Isotropic Radiated Power (EIRP in dBm) in any direction/polarization for the hardware combinations proposed in the maximum transmitting power configuration. (state Average or Peak power)	
5	Antenna working orientation and radiation pattern (attach pattern chart/graph or equivalent information, "omni-directional," etc.) for all indoor radiators	
6	Carrier modulation patterns or maximum transmission cycle frequency for the transmitting devices	
7	Maximum number of transmitting devices per system unit or shelf (for systems with multiple co-located RF transmitting devices, e.g. multi-radio or multi-card shelves)	
8	For discrete component systems, specify maximum RF leakage emissions level for interconnecting interior waveguide or coaxial cable.	

See Section 1.9 and 2.3.C for requirements criteria and Paragraph 15.6 for description. Complete one form for each self-contained device or unique transmitter and radiator combination. If several transmitting devices are involved, please provide tabulated information as an attachment. Reproduce Form RFTX as needed. Provide attachments from the manufacturer or an accredited testing laboratory (reference Section 1.12) documenting the RF emissions levels stated. For item 8, any documented measurements are acceptable if specified documents are not available.

## 16. APPENDIX A

### ATT-TP-76200 Equipment Evaluation Process

#### 16.1. *Purpose*

The purpose of this appendix is to assist product suppliers with preparing and furnishing equipment documentation to the company representative for product evaluation purposes.

#### 16.2. *Evaluation Types, Evaluation Levels and Equipment Locations*

Types and Deployment Locations  
Refer to Section 1.6 through 1.10.

#### 16.3. *Product Evaluation Documentation*

Documentation verifying that the equipment has been tested and conforms to applicable ATT-TP-76200 requirements must be submitted to the company representative. There are two acceptable processes for supplying documentation verifying conformance.

#### 16.4. *Test Report Documentation Package*

Product information shall be assimilated in an organized fashion and provided to the company representative. A *cover memo* identifying included documentation should be included to facilitate the evaluation process. If available, informative product awareness brochures should also be provided.

##### Test Report Details

Relative to product test reports, AT&T Services accepts test reports from any testing facility adequately equipped and capable of performing the required tests in a professional manner under the requirements. At a minimum, test reports shall contain the following information:

- Test report number
- Description of Equipment Under Test (EUT), including specific test configuration
- Location and date of test

##### Description of test equipment

- Calibration dates of test equipment
- Protocol of test with stated pass/fail criteria

- Test result data
- Assessment of whether equipment passed or failed the test
- Detailed notes on any anomalies during test procedure

Detailed notes on any modifications made to the equipment in order to pass the test and detailed plans to incorporate the modifications into the final product.

**Note:** If the documentation is being submitted electronically or via CD disk, the file name or file folder shall clearly identify the file's contents (e.g. GR-63 test data). Reference the ATT-TP-76200/ATT-TP-76450 Evaluation Log #.

## 16.5. ***ATT-TP-76200/ATT-TP76450 Documentation Package***

Each documentation package shall include a

Test reports component List: This is an Excel spreadsheet of all components within the Lab Test report provided. Used for inventory of Equipment.

Include Manufacture, product, and Evaluation Log number and the report. Then the components listed with Part and any related reference numbers

**NOTE: The ESR form is no longer required as part of the ATT-TP-76200 documentation packages but is still included in the ATT-TP-76200 as an Equipment Supplier Requirements checklist for the Level of conformance being evaluated.**

### 1. **Carrier Grade- Documentation package requires**

- **ATT-TP-76200 Carrier Grade-Level 3 :**
  - Detailed test results supporting the ESR-003 CG, ESP/ATIS\_tables\*, FRM, Pbf\* Forms Energy Efficany report and the ATT-TP76450 checklist  
  
( If response to the Pbf form states Lead Free Solder see ATT-TP76200 Section 12 for additional required testing and documentation)  
(RF- Transmitting Devices require RFTX form)  
(\*ATIS Tables ATT-TP-76200 Section 6.)
- **ATT-TP-76200 Carrier Grade-Level 1:**
  - Detailed test results supporting the ESR-001 CG, ESP/ ATIS\_tables\*, FRM Forms and the ATT-TP-76450 Checklist.  
(RF- Transmitting Devices require RFTX form  
(\*ATIS Tables( ATT-TP-76200 Section 6.)

- **ATT-TP-76200 Ancillary :**
- Detailed test results supporting the ESR-ANC, ESP, FRM, Pbf Forms.  
(If response to the Pbf form states Lead Free Soder see ATT-TP76200 Section 12 for additional required documentation)  
ATIS Tables ( ATT-TP-76200 Section 6 .) or Note original evaluation Log or No change in Air flow or thermals.

**Outside of the United States of America (MoW):**

For Countries other than the U.S.A. These locations will require an Attestation to the applicable Local Safety Codes, RF Emission, Environmental (RoHS/WEE) requirements by Country. Outside the United States Attestation. Required. (16.12)

2. **Non Carrier Grade package requires:**

- **ATT-TP-76200 Non-Carrier Grade-Level 3**  
Detailed test results supporting the ESR-000-NCG, ESP/ATIS Tables, FRM, PbF Forms.  
ATIS Tables ( ATT-TP-76200 Section 6 .) (RF- Transmitting Devices require RFTX form)
- **ATT-TP-76200 Non-Carrier Grade-Level 1**  
NRTL Listing and FCC Part 15 Detailed verification reports test results and Product Data Sheet. (RF- Transmitting Devices require RFTX form)

**Outside of the United States of America (MoW):**

For Countries other than the U.S.A. These locations will require an Attestation to the applicable Local Safety Codes, RF Emission, Environmental (RoHS/WEE) requirements by Country. Outside the United States Attestation. Required. (16.12)

3. **ATT-TP-76200 Out Side Plant / Cell Site Level 1:**

Detailed test results supporting the ESR-001 OSP/CELL-SITE, ESP/, FRM. PbF and ATT-TP-76450 Checklist

4. **ATT-TP-76200 OSP/CELL-SITE-Level 3 :**Detailed test results supporting the ESR-003 OSP/CELL-SITE, ESP/ATIS Tables, FRM, and PbF Forms. ATT-TP-76450 Checklist. ATIS Tables ( ATT-TP-76200 Section 6 .)

5. **OSP/CELL-SITE Closures:** ATT-TP-76205 See Section 14

**NOTE: Equipment will not be evaluated for use without receipt of correct ATT-TP-76200/ATT-TP-76450 Documentation or Fast Track Package..**

### 16.6. **AT&T Services Documentation Package Evaluation Process**

The AT&T Services Common Systems Equipment Evaluation group will review the equipment Documentation Package. If the equipment cannot be evaluated as compliant to all applicable requirements, an Initial Letter will be sent to the company representative specifying the areas that are not evaluated in conformance and what further action is required of the equipment supplier.

Upon receipt of the Initial Letter, the equipment supplier may forward supplemental data to or contact the company representative, the AT&T Services Equipment Evaluation Group Coordinator or a specific SME regarding non-compliance resolution. Contact information for the Group Coordinator and SMEs is contained in the Initial Letter. Documentation, electronic, forwarded to AT&T Services containing supplemental data in response to an Initial Letter should identify the contents of documentation and reference the Evaluation **Log number** assigned to the product, the SME who requested the data and the non-compliance requirement the data is addressing.

The SME(s) who requested the documentation will evaluate supplemental data forwarded to AT&T Services by the product supplier. If the supplemental data is sufficient to allow all open areas to be evaluated as in conformance to applicable requirements, a Notification of Conformance to ATT-TP76200 Report will be sent to the company representative notifying them that the equipment conforms to requirements. If there are still open items after supplemental data has been reviewed an Evaluation Status letter will be sent to the company representative giving the status of the product and what further action the product supplier needs to take.

### 16.7. **AT&T Services Product Evaluation Fast Track Process**

AT&T Services has established a fast track process it will use for certain business opportunities to streamline equipment evaluations and shorten time-to-market intervals. The process consists of AT&T Services accepting ATT-TP-76200 compliance Letters of Attestation and minimal product information from equipment suppliers in lieu of the Test Report Documentation Package described above.

#### A. ATT-TP-76200 Fast Track General guidelines:

- 1) The process is an optionally agreed upon business arrangement between AT&T Services and an equipment supplier.
- 2) A supplier must have successfully participated in the Test Report Documentation Package process at least once to be eligible for the fast track process.
- 3) AT&T Services reserves the right to review any and all test documentation cited in the Letter of Attestation during the time the equipment is an integral component of AT&T's network.
- 4) Test documentation cited in the Letter of Attestation must be made available to AT&T Services within 20 business days upon receipt of a written request.

- 5) AT&T Services may take any or all of the following actions for products approved for use via a Letter of Attestation that are subsequently found not to conform to applicable ATT-TP-76200 requirements:
  - Suspend further purchase of the product.
  - Require previously purchased products be brought into compliance.
  - Suspend the supplier's further use of the Fast Track process.
  - Hold the supplier liable for any damages directly resulting from the product's failure to conform to applicable requirements.
- 6) The equipment must have been tested and found in conformance to **ALL** applicable requirements. **The Fast Track Process will not be accepted if any requirement is not met or is conditionally met.**
- 7) The Fast Track process may NOT be used:
  - If the equipment contains integrated protectors.
  - For OSP/CELL-SITE enclosures. (ATT-TP-76205 requirements and process applicable)
  - For equipment with radio frequency (RF) transmitting devices

B. AT&T Services Product Evaluation Fast Track Process Procedure for Product Suppliers

- 1) Verify with the company representative that the Fast Track process is appropriate for the product/project.
- 2) Complete all applicable tests required by ATT-TP-76200.
- 3) Review and verify the product's conformance to **ALL** applicable requirements.
- 4) Complete and submit the Letter of Attestation that is applicable for the Type of Evaluation (i.e., Level 1, Level 3 or Ancillary). A template for the letter is contained in 16.8. All of the information requested in the applicable template must be completed. The Letter of Attestation must be signed at director level or above and notarized.
- 5) Complete and submit the Test report components list.
- 6) Complete and submit either form ESP-001 or ESP-002, whichever is applicable for the product and ATIS Air Flow reports. (ATT-TP76200 Section 6).
- 7) Complete and submit form Attachment 1, Fast Track Report Form
- 8) Complete ATT-TP-76450 Checklist and or PbF Form if Not Checked on the Letter of Attestation.
- 9) RF- Transmitting Devices require RFTX form and conformance to 2.3.C

16.8. ***AT&T Letter of Attestation::***

**AT&T SERVICES FAST TRACK REPORT**

If the request use of the Fast Track program, this form must be submitted with a complete description of the equipment's design and function. Manufacturer's documents such as brochures may be attached for reference when applicable.

Equipment vendor name:

Equipment model:

Does equipment have optical components? Yes  No

Equipment Port Types (Port Type shall be determined using GR-1089, Appendix B).

General technology description (e.g. DSLAM, DLC, etc.) including drawings, pictures, etc.:

Detailed description of functionality:

**AT&T SERVICES LETTER OF ATTESTATION**

**Equipment Compliance to AT&T Services Technical Publication ATT-TP-76200 Requirements**

(Company name) hereby asserts, to the best of its knowledge, and pursuant to the information contained in the test reports identified herein, that the equipment listed below has been tested and found compliant to ALL applicable AT&T Technical Publication ATT-TP-76200 requirements as indicated below.

Equipment vendor name:

Equipment model:

Name of test Facility/internal organization performing tests:

Date of test report(s):

Test report number(s):

**Mark the ATT-TP-76200 Requirements to which the equipment conforms.**

Evaluation Type		Evaluation Requirement Level		Equipment Type		Equipment Deployment Locations			
New	<input type="checkbox"/>	Level One (ESR-001-xxx)	<input type="checkbox"/>	Carrier Grade	<input type="checkbox"/>	Carrier Communication Space (*Example: CO, Mtso, NTC, SNRC)	<input type="checkbox"/>		
Ancillary	<input type="checkbox"/>	Level Three (ESR-003-XXX)	<input type="checkbox"/>	Non-Carrier Grade	<input type="checkbox"/>	Partitioned Network Space**	<input type="checkbox"/>		
PCN (Product Change Notice)	<input type="checkbox"/>	<div style="border: 1px solid black; padding: 5px;"> <p>* For RF Transmitting Devices, requires RFTX Form.</p> <p>** Example: SHO/VHO, Affiliate, and Customer Premise) Space separated by one-hour fire rated barriers from Carrier</p> </div>		Network Administrative Support	<input type="checkbox"/>	AT&T Test Laboratory	<input type="checkbox"/>		
				Outside Plant (OSP)	<input type="checkbox"/>	OSP/Cell site GR-3108 Class 1 CEV/HUT	<input type="checkbox"/>		
				Portable Test Set	<input type="checkbox"/>	Outside Plant/Cell Site GR-3108 Class 2 (-40C to +65C)	<input type="checkbox"/>		
				RF- Transmitting Device*	<input type="checkbox"/>	Outside Plant/Cell Site GR-3108 Class 3 (-40C to +70C)	<input type="checkbox"/>		
				Network Customer Prem	<input type="checkbox"/>	Outside Plant/Cell Site GR-3108 Class 4 (Unprotected)	<input type="checkbox"/>		

**Additional Information:**

Is the equipment listed for its use by a Nationally Recognized Testing Laboratory (NRTL) Yes  No

Has this equipment been modified in any manner to meet requirements? Yes  No   
 If yes, disclose any modification used in testing to the equipment which are necessary to meet ATT -TP-76200 requirements (use page 2 if necessary)

Is shielded cable required to meet GR-1089 4.6? If so, explain. Yes  No   
 (use page 2 if necessary)

Is any part of the equipment manufactured with lead-free solder? Yes  No

If the equipment uses lead-free solder, does it meet requirements in Section 12.2? ..... Yes  No

Is the equipment a Radio Frequency Transmitting Device? ..... Yes  No

Page 3 of AT&T Services Letter of Attestation

(Company name) agrees that statements made in this letter may be audited by AT&T Services via a review of compliance confirmation data (the reports listed above), and that this data will be made available to AT&T Services within 20 business days of request. If the above equipment is determined to not meet AT&T Services requirements as attested to, \_\_ (company name) \_\_ acknowledges and agrees that, at its expense, it will remedy any such non-compliance in accordance with the terms of the contract under which the equipment was evaluated/purchased and/or licensed. .

(Company name) has caused this Letter of Attestation to be executed by its duly authorized representative as of the date written below.

(Company name)

By: \_\_\_\_\_

Title: \_\_\_\_\_

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

**NOTE: This affidavit must be signed in front of a notary and notarized**

**Contact information to request test reports: Name:** \_\_\_\_\_

**Phone number:** \_\_\_\_\_

**NOTE:** Information describing the product must accompany the Letter of Attestation (e.g., brochures, pamphlets etc.)

Disclosure of modifications used to this equipment which are necessary to meet ATT -TP-76200 requirements:

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---

If shielded cable required to meet GR-1089, Section 4.6. explain:

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16.9. **Product Change Notice Statement**

**LETTER OF ATTESTATION - PCN**

**Equipment Compliance to AT&T Services Technical Publication ATT-TP-76200 Requirements**

(Company name) hereby asserts, to the best of its knowledge, and pursuant conclusions drawn from sound engineering judgment, that the PCN described below has been evaluated as having no significant impact to the compliance of the equipment listed below to **ALL** applicable AT&T Technical Publication ATT-TP-76200 requirements, except as noted below.

Equipment vendor name:

Equipment model PCN is for:

PCN Number:

Description of PCN:

ATT-TP-76200 requirements NOT COVERED by this document

Describe the engineering justification for concluding the PCN will not affect ATT-TP-76200 compliance:

(Company name) has caused this Letter of Attestation to be executed by its duly authorized representative as of the date written below.

By: \_\_\_\_\_

Title: \_\_\_\_\_

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

Phone number: \_\_\_\_\_

16.10. *Form LOA-LE*

**LETTER OF ATTESTATION – Lab Entry**

**Equipment Compliance to AT&T Services Technical Publication ATT-TP-76200 Requirements**

Form LOA-001, *Letter of Attestation for Lab Entry*, shall be completed, signed and notarized by supplier when equipment is intended for placement in AT&T test laboratories and the equipment does NOT meet Objective 1.11 of this document.

Per requirement 1.11 ([Company name](#)) hereby asserts, to the best of its knowledge, and pursuant conclusions drawn from sound engineering judgment, that the equipment described below meets or exceeds electrical safety and fire standards as detailed in UL 60950.

Equipment vendor name:

Equipment model:

[Company name](#) has caused this Letter of Attestation to be executed by its duly authorized representative as of the date written below.

By: \_\_\_\_\_

Title: \_\_\_\_\_

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

Phone Number: \_\_\_\_\_

NOTE: This affidavit must be signed in front of a notary and notarized

16.11. **SJR Pb-free Solder**

**AT&T SERVICES LETTER OF ATTESTATION**

**Product Family Compliance to AT&T Services Technical Publication ATT-TP-76200 Pb-free Solder Requirements**

(Company name) hereby asserts that (Product/System Family) being submitted for AT&T's acceptance is in compliance with ATT-TP-76200 Section 12.2. (Company name) hereby attests that:

1. One or more of the supplier's Pb-free circuit pack assemblies has previously been submitted to AT&T and has been accepted as successfully meeting the requirements of ATT-TP-76200 Section 12.2 paragraph 2.1:

*"Vendors' first submission of a Pb-free assembly shall meet the full test requirements of ATIS-0600020 and be accompanied by copies of the test reports confirming compliance with the ATIS standard. Alternative testing procedures, normally carried out by the Vendor as part of its Pb-free product realization process, may be substituted with prior approval of AT&T. Request for approval must include details of the proposed test procedure and Vendors' explanation of how it equals or surpasses ability of the ATIS tests to expose problems related to Pb-free solder joints and/or material weaknesses associated with the higher temperatures of Pb-free solder processes. The checklist contained in Section 4.3 of ATIS-0600020 shall be completed and submitted regardless of the test method used."*

2. All Pb-free circuit packs comprising the product/system family currently being submitted for AT&T's acceptance have been realized via the same qualified Pb-free processes used for the circuit pack assemblies cited in (1) above. These include supplier's processes for selection/qualification of Pb-free compatible components, PCB laminates and solder alloys and for assembly facility qualification.
3. Documentation of above processes shall be made available for inspection upon AT&T's request.

(Company name) has caused this Letter of Attestation to be executed by its duly authorized representative as of the date written below.

(Company name)

By: \_\_\_\_\_

Title: \_\_\_\_\_

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

**NOTE: This affidavit must be signed in front of a notary and notarized**  
**Contact information to request test reports:**

**Name:** \_\_\_\_\_

**Phone number:** \_\_\_\_\_

16.12. *Outside the United States*

**AT&T SERVICES LETTER OF ATTESTATION  
for Equipment Deployed Outside the United States**

Completed document must be submitted for any product intended for deployment in the AT&T network outside of the United States of America..

Equipment vendor name:

Equipment model:

General technology description including drawings, pictures, etc.:

Detailed description of functionality:  
-----

**On the next page mark “Yes” or “No” to indicate compliance to homologation\* for each country, then list applicable markings received for each country.**

Equipment complies with ATT-TP-76200 Section 3A, maximum acoustic noise safety level of 73 dBA sound pressure, as measured according to ANSI ASA S12.12.10-2002, or a comparable standard.

YES  NO

(Company name) authorizes this Letter of Attestation to be executed by its representative as of the date written below.

By: \_\_\_\_\_

Title: \_\_\_\_\_

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

**NOTE: This affidavit must be signed in front of a notary and notarized**

**Contact information to request test reports:**

Name: \_\_\_\_\_

Phone number: \_\_\_\_\_

Disclosure of modifications used to this equipment which are necessary to meet requirements:

**AT&T SERVICES LETTER OF ATTESTATION**  
for Homologation\* of Equipment Deployed Outside the United States

**\*Homologation: Indicates compliance to all of a country’s applicable codes and requirements, including but not limited to electrical safety, fire, electromagnetic emissions, hazardous substances, etc. for electronic equipment.**

(Company name) hereby asserts that the equipment listed below has met the homologation requirements for all countries marked “Yes”.

- *Equipment model:*

Country	Homologation Compliance YES/NO	List Applicable Code/ Requirements Markings Received	Country	Homologation Compliance YES/NO	List Applicable Code/ Requirements Markings Received
ARGENTINA			MALAYSIA		
AUSTRALIA			MEXICO		
AUSTRIA			MOROCCO		
BELGIUM		CE, RoHS, WEEE	NETHERLANDS		
BRAZIL			NORWAY		
BULGARIA			PAKISTAN		
CANADA			PANAMA		
CHILE			PERU		
CHINA			PHILIPPINES		
COLOMBIA			POLAND		
CROATIA			PORTUGAL		
CYPRUS			QATAR		
CZECH REPUBLIC			ROMANIA		
DENMARK			RUSSIA		
ECUADOR			SAUDI ARABIA		
FINLAND			SINGAPORE		
FRANCE			SLOVAKIA		
GERMANY			SOUTH AFRICA		
GREECE			SOUTH KOREA		
HONG KONG			SPAIN		
HUNGARY			SWEDEN		
INDIA			SWITZERLAND		
INDONESIA			TAIWAN		
IRELAND			THAILAND		
ISRAEL			TURKEY		
ITALY			UK		
JAPAN			UNITED ARAB EMIRATES		
KUWAIT			VENEZUELA		



## 17. APPENDIX B:

### ATT-TP-76200 EQUIPMENT CHANGE TEST GUIDELINES

#### 17.1. *Purpose*

The purpose of this appendix is to provide equipment suppliers a guide to help determine what tests may not need to be performed on a product enhancement to verify conformance to ATT-TP-76200 Ancillary requirements.

#### 17.2. *General*

Some equipment enhancements are so minor that a complete retest of the equipment may not be necessary. Typically, when a equipment supplier requests a re-test waiver to run tests on equipment enhancements, data comparing the new equipment to the existing equipment is submitted to the company representative for evaluation by AT&T Services. Depending on the equipment under review, this data may include pictures, fire load data, descriptions of electrical components, etc. Each AT&T Services equipment evaluation subject matter expert (SME) then reviews this data and responds with an assessment of what tests are required. *This Appendix is a guideline only. It is the equipment suppliers' responsibility to satisfactorily document that the new equipment conforms to applicable requirements.* This Appendix only applies to equipment enhancements to equipment previously evaluated as in conformance to applicable ATT-TP-76200 requirements and approved for use in AT&T.

Software upgrades/changes shall be evaluated if it involves:

- Additional or revised hardware
- Activation of previously unused hardware
- An increase in the amount of power supplied to the hardware

#### 17.3. *Retest Guidelines by ATT-TP-76200 Sections*

##### A. Section 2, Electromagnetic Compatibility

##### *Electromagnetic Interference – Emission & Immunity (ATT-TP-76200 Req. 2.4 – 2.5)*

- Equipment suppliers should reassess or retest their equipment's Emissions and Immunity performance in accordance with GR-1089 CORE, Section 3.4.7. As part of their reassessment, equipment supplier shall consider the effects of software changes on the Emissions and Immunity performance of their equipment.

##### *Lightning, AC Power Faults, Steady State Power Induction, Electrical Safety & DC Potential Difference (ATT-TP-76200 Req. 2.6 – 2.9).*

- Equipment supplier's should reassess or retest their equipment's performance for Lightning, AC Power Faults, Steady State Power Induction, and Electrical Safety & DC Potential Difference whenever materials, components, circuit layout or accessibility is changed. .Equipment should be reassessed or retested when changes in software activate hardware not previously active or affect the equipment's ability to the EMC requirements of ATT-TP-76200 (Req. 2.6 – 9). The equipment's reassessment or retesting may include all of the technical requirements in these sections of ATT-TP-76200. However, the reassessment or retesting is usually limited to only those technical requirements effected by the change in the equipment.

*B. Section 3, Acoustic Noise (ATT-TP-76200 Section. 3.)*

- Equipment suppliers should reassess or retest their equipment's Acoustic Noise performance when a change is made to the equipment's fan design, fan control system or a change in the number of fans within the equipment.

*C. Section 4, ESD*

- Subsystems should be tested whenever changes are introduced that may alter ESD susceptibility. Such changes may include a modified printed wiring board, new/or additional components additional components, changes to the power supply, additional telecommunications ports, and changes in chassis design, software activation of existing hardware or increased clock speed.

*D. Section 5, Grounding*

- The only Grounding requirements for Ancillary equipment are the short circuit tests. Embedded ac or dc power supplies should be tested whenever changes are introduced that could alter these. Such changes may include a modified printed wiring board, new components or additional components, changes to the power supply, additional telecommunications ports, changes in chassis design, software activation of existing hardware or increased clock speed.

*E. Section 6, Thermal*

*F. Temperature and Humidity*

If the new equipment is significantly different from existing compliant equipment (e.g., different sub components, wiring, spacing, etc.) the previous test data may not be applicable to the new equipment. In order to be allowed to forego temperature and humidity testing on a new equipment, the equipment supplier needs to demonstrate to AT&T Services that the new equipment is physically almost identical to the existing compliant equipment. This may be done via photographs, written descriptions, statements, etc.

Heat Dissipation

Heat dissipation should be recalculated whenever a change is introduced that changes the power usage of the unit.

#### Airflow Path

Airflow path(s) should be updated whenever a change is introduced that changes the documented airflow(s) of the unit.

#### Direction and Velocity (Effective 1/1/2012)

Direction and velocity(ies) of the designated airflow paths should be updated whenever a change is introduced that changes the documented airflow(s) of the unit.

### G. Section 7, DC Power

The equipment supplier may perform an analysis, using good engineering based on similarities to the existing equipment, predicting the probable conformance of the new equipment to Ancillary DC Power requirements. This analysis should consider similarities and differences of electric components, wiring, and power levels. The analysis shall be submitted to the company representative for review and approval by AT&T Services.

### H. Section 8, Airborne Contaminants

In reference to Airborne Contaminants testing, Telcordia GR-1274-CORE, states that "The qualification test shall be passed once for each new family of printed wiring assemblies." Based on Telcordia's assessment, new assemblies for enhanced equipment need not be tested for airborne contaminants if they meet the criteria for the same design family of printed boards, defined as follows:

- *A design family consists of printed wiring boards from the same manufacturer; using the same design rules for minimum line spacing and maximum electric field, and using components that require the same bias voltages. Within the same design family, boards shall have the same finish, i.e. they shall all be bare or all be coated with the same overcoat.*

If the equipment supplier does not test some or all of the printed wiring boards in enhanced equipment, they shall supply a statement affirming that the board(s) not tested meets the definition for being in the same design family of a equipment previously approved for use in AT&T. Documentation verifying the conformance of the tested card must be submitted for review.

### I. Section 9, Shock and Vibration

Equipment should be tested whenever changes are introduced that could alter the physical integrity of the unit.

Section 10, Fire Resistance:

Reasons for Reassessment

Generally, equipment that have been determined to be acceptable for purchase from a fire resistance perspective do not have to be re-evaluated or retested unless subsequent changes to the equipment include one or more of the following:

- 1) A change in the manufacturer's unique equipment identifier.
- 2) A modification to an equipment assembly's enclosure that increases ambient air circulation.
- 3) The addition of integral or separately mounted cooling fan(s) or a manufacturer's requirement or recommendation that fans be used with the equipment.
- 4) The substitution of metallic apparatus with combustible material.
- 5) A change in an equipment assembly's electrical protection circuitry that increases the ampere rating of an overload protection device or affects the operational characteristics of a cooling fan.
- 6) The addition of printed circuit board(s) to one or more existing printed circuit board.
- 7) The addition of vertically oriented printed circuit boards to the extent that overall circuit board surface area within the unit is increased by 300 cm<sup>2</sup> (46.5 in.<sup>2</sup>).
- 8) Evolution of plug-in circuit packs used in equipment makes it questionable whether the equipment accurately resembles its original test configuration.

Acceptance of new Equipment by "similarity" as compared with a previously Approved Equipment.

Generally, if a pizza box type equipment having the same size, weight, physical and electrical properties as well as possessing the same material components to that of a equipment that has been previously tested and passed for fire propagation characteristics, need not be tested again.

A statement is required from an approved testing lab stating:

- 1) Equipment "A" contains same material as Equipment "B"
- 2) Equipment "A" has the same physical and electrical characteristics as equipment "B"
- 3) Equipment "A" has same fire propagation characteristics as Equipment "B"

Submit:

- 4) A test report with date and test results for Equipment "B"
- 5) Any exception taken during the test of Equipment "B"

6) Any dissimilarity between Equipment "A" and Equipment"B"

Shared Routing Service & Emergency Call Routing Service (ECRS) PSAP Implementation Plan with Aggregation Sites

ID	Task Name	Duration	Start	Finish	Resources	Predecessors	Successors	Timeline																																				
								W-2	W-1	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	W22	W23	W24	W25	W26	W27	W28	W29	W30	W31	W32	W33	W34	W35
1	<b>ANGEN AT&amp;T ESINet Implementation and PSAP Transition Project Plan</b>	178 days	Mon 10/3/16	Wed 6/7/17				[Timeline bar]																																				
2	<b>Definition Phase</b>	101 days	Mon 10/3/16	Mon 2/20/17				[Timeline bar]																																				
3	Additional network and PSAP details provided	0 days	Mon 10/3/16	Mon 10/3/16	ANGEN		4	[Timeline bar]																																				
4	Executed Contract	0 days	Mon 10/3/16	Mon 10/3/16	ANGEN,AT&T	3	211FF,8FS+	[Timeline bar]																																				
5	<b>Internal Project Kickoff Steps</b>	20 days	Mon 10/3/16	Fri 10/28/16				[Timeline bar]																																				
6	Confirm Interconnection Agreements	5 days	Mon 10/3/16	Fri 10/7/16	AT&T	4	63	[Timeline bar]																																				
7	<b>Project Planning</b>	10 days	Mon 10/17/16	Fri 10/28/16			212FF	[Timeline bar]																																				
8	Project Kickoff	1 day	Mon 10/17/16	Mon 10/17/16	AT&T,ANGEN	4FS+10 days	9	[Timeline bar]																																				
9	Introductory call	1 day	Tue 10/18/16	Tue 10/18/16	AT&T,ANGEN	8	14,12,44FF+	[Timeline bar]																																				
10	Collaborate on Project Plan	5 days	Mon 10/24/16	Fri 10/28/16	AT&T,ANGEN	4FF+20 days		[Timeline bar]																																				
11	<b>Kick-Off Meeting</b>	2 days	Wed 10/19/16	Thu 10/20/16			213	[Timeline bar]																																				
12	Create presentation and materials	1 day	Wed 10/19/16	Wed 10/19/16	AT&T,ANGEN	9	13	[Timeline bar]																																				
13	Conduct Kickoff	1 day	Thu 10/20/16	Thu 10/20/16	AT&T,ANGEN	12	18,19,20,21,2	[Timeline bar]																																				
14	Obtain signed LOA	1 day	Wed 10/19/16	Wed 10/19/16	AT&T,ANGEN	9	42	[Timeline bar]																																				
15	<b>Data Collection</b>	101 days	Mon 10/3/16	Mon 2/20/17				[Timeline bar]																																				
16	<b>Conduct PSAP and Project Data Collection</b>	101 days	Mon 10/3/16	Mon 2/20/17				[Timeline bar]																																				
17	<b>PSAP Data Collection Packet</b>	87 days	Fri 10/21/16	Mon 2/20/17				[Timeline bar]																																				
18	OSP list and contact information	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13	42,111SS	[Timeline bar]																																				
19	Star Code List	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13	42	[Timeline bar]																																				
20	ESN List	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13	42	[Timeline bar]																																				
21	Routing List	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13	42	[Timeline bar]																																				
22	PSAP MSAG	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13	42	[Timeline bar]																																				
23	Collect data on PSAP-specific services needed	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13		[Timeline bar]																																				
24	Update PSAP Transfer Spreadsheet	20 days	Fri 10/21/16	Thu 11/17/16	AT&T	13	42	[Timeline bar]																																				
25	<b>GIS Data Preparation</b>	87 days	Fri 10/21/16	Mon 2/20/17				[Timeline bar]																																				
26	Provide GIS Data	20 days	Fri 10/21/16	Thu 11/17/16	Local GIS Author	13	27	[Timeline bar]																																				
27	Receive GIS Data #1	0 days	Thu 11/17/16	Thu 11/17/16	AT&T	26	28	[Timeline bar]																																				
28	Perform GIS Data Analysis #1	10 days	Fri 11/18/16	Thu 12/1/16	AT&T	27	29FF	[Timeline bar]																																				
29	Create GIS Data Readiness Report and Review #1	2 days	Wed 11/30/16	Thu 12/1/16	AT&T	28FF	30	[Timeline bar]																																				
30	Customer GIS Data Remediation	15 days	Fri 12/2/16	Thu 12/22/16	Local GIS Author	29	31	[Timeline bar]																																				
31	Receive GIS Data #2	1 day	Fri 12/23/16	Fri 12/23/16	AT&T	30	32	[Timeline bar]																																				















# NON LIVE ACCEPTANCE TEST PLAN

<PSAP/COUNTY>

<DATE>

Confidential/Proprietary



# AT&T ESInet™ Non Live Acceptance Test Plan

*Prepared for* <PSAP>

*Project Locations:*

<TESTING DATE>

Confidential/Proprietary



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PSAP will immediately advise AT&T in writing of any Open Records Act type of requests as it may relate to this document or any information contained herein.

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## *INTRODUCTION*

The AT&T ESInet™ Non Live Test Plan described in this document provides an overview of testing and a list and description of test cases for the implementation of AT&T ESInet™ Routing services. The objective for this test plan is to demonstrate the network and call processing equipment readiness to receive 9-1-1 traffic using the AT&T ESInet™ Routing service. Test participants include <PSAP> and AT&T ESInet™ Service Delivery.

The AT&T ESInet™ Non Live Test Cases will demonstrate feature functionality of AT&T ESInet™. The Test calls will deliver simulated “9-1-1” calls from the AT&T end office to the PSAPs over the AT&T ESInet™ network to the call processing equipment installed at <PSAP>.

The AT&T ESInet™ team manages the testing process and coordinates all test calls documented in the AT&T ESInet Non Live Test Plan. The testing is scheduled in accordance with the PSAPs availability. The PSAP is asked to provide a resource to answer the test calls and may be asked to provide documentation (i.e. screen prints and recordings) for certain calls.

The list of standard tests demonstrates feature functionality of the AT&T ESInet™ Routing Services to include:

- Operation of PSAP equipment
- Call Processing:
  - Call transfer and bridging functions
  - PSAP abandonment routing
  - Alternate and default routing

**NG9-1-1 NON LIVE ACCEPTANCE TEST PLAN**

**NON LIVE ACCEPTANCE TEST CASES: AT&T ESINET™ ORIGINATED CALLS**

Test #	Test Case	Type	Testing Criteria	Time	Pass/Fail and Comments
TEST LOCATION: <PSAP> DATE & TIME: <DATE/TIME> CALL ORIGINATOR: AT&T			CALL TAKER: ON-DUTY CALL-TAKER ANI: <ANI>		
1	Call Routed to PSAP	Equipment	Test call sent to <TEST PSAP>. Caller confirms routing and audio quality.	<5 min	HHMM MT - Test call generated from AT&T to <PSAP>; good ANI & Voice delivered. <PASS/FAIL>
2	Fixed Bridge conferencing confirmation	Call Processing	Test call sent to <TEST PSAP> and transferred to *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TEST PSAP> disconnects. Caller confirms that caller and call taker at <TRANSFER PSAP> are still bridged.	<5 min	HHMM MT - Test call generated from AT&T to <PSAP>; good ANI/ALI & Voice delivered; transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>
NOTE: A separate call will not be needed for each of the remaining fixed bridge test cases. A single call can be made and transferred multiple times.					



**NG9-1-1 NON LIVE ACCEPTANCE TEST PLAN**

Test #	Test Case	Type	Testing Criteria	Time	Pass/Fail and Comments
3	Fixed Bridge conferencing confirmation	Call Processing	Test call sent to <TEST PSAP> and transferred to *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TRANSFER PSAP> disconnects.	<5 min	HHMM MT - Test call generated from AT&T to <TEST PSAP>; good ANI/ALI & Voice delivered; transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>
4	Fixed Bridge conferencing confirmation	Call Processing	Test call transferred *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TRANSFER PSAP> disconnects.	<5 min	HHMM MT - Transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>
5	Fixed Bridge conferencing confirmation	Call Processing	Test call transferred *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TRANSFER PSAP> disconnects.	<5 min	HHMM MT - Transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>
6	Fixed Bridge conferencing confirmation	Call Processing	Test call transferred *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TRANSFER PSAP> disconnects.	<5 min	HHMM MT - Transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>



**NG9-1-1 NON LIVE ACCEPTANCE TEST PLAN**

Test #	Test Case	Type	Testing Criteria	Time	Pass/Fail and Comments
7	Fixed Bridge conferencing confirmation	Call Processing	Test call transferred *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TRANSFER PSAP> disconnects.	<5 min	HHMM MT - Transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>
8	Fixed Bridge conferencing confirmation	Call Processing	Test call transferred *XX - <TRANSFER PSAP>. All parties on the bridge talk to confirm conferencing is established. Call taker at <TRANSFER PSAP> disconnects.	<5 min	HHMM MT - Transfer to *XX; good ANI/ALI & Voice delivered; conferencing established. <PASS/FAIL>
12	Manual Transfer to valid local TN	Call Processing	Test call sent to <TEST PSAP>; Manual Transfer to local TN: <NPA-NXX-XXXX>	<5 min	HHMM MT - Test call generated from AT&T to <TEST PSAP>; good ANI/ALI & Voice delivered; manual transfer to <NPA.NXX.XXXX>; good Voice delivered; conferencing established. <PASS/FAIL>
13	Manual Transfer to valid long distance cell	Call Processing	Test call sent to <TEST PSAP>; Manual Transfer to long distance cell: <NPA-NXX-XXXX>	<5 min	HHMM MT - Test call generated from AT&T to <TEST PSAP>; good ANI/ALI & Voice delivered; manual transfer <NPA-NXX-XXXX>; good ANI & Voice delivered; conferencing established. <PASS/FAIL>
14	Alternate Routing	Call Processing	All trunks busied to force all calls to route to Alternate Route. Test call sent to <TEST PSAP>, call routed to <ALTERNATE ROUTE> as expected.	<10 min	HHMM MT - Trunks busied out. HHMM MT - Test call generated from AT&T to <TEST PSAP>; call routed to <ALTERNATE ROUTE> as expected. <PASS/FAIL>

Confidential/Proprietary



**NG9-1-1 NON LIVE ACCEPTANCE TEST PLAN**

Test #	Test Case	Type	Testing Criteria	Time	Pass/Fail and Comments
15	Ring no Answer Timer	Call Processing	Test call sent to <TEST PSAP>, call is allowed to ring continuously until rolling over to Alternate route (RNA TIME): call routes to <ALTERNATE ROUTE> as expected.	<5 min	HHMM: MT – Test call behaves as expected and rolls over to expected destination.  <PASS/FAIL>
16	Abandonment Routing	Call Processing	Call 877-214-3032 to abandon PSAP. PSAP ID: <XXXXXXXXXX> Test call sent to <TEST PSAP>, call routed to <ABANDONMENT ROUTE> as expected.	<20 min	HHMM MT – PSAP Abandoned HHMM MT - Test call generated from AT&T to <TEST PSAP>; call routed to <ABANDONMENT ROUTE> as expected with good ANI/ALI & Voice.  <PASS/FAIL>
17	Un-Abandonment Routing	Call Processing	Call 877-214-3032 to un-abandon PSAP. PSAP ID: <XXXXXXXXXX> Test call sent to <TEST PSAP>, call routed to <TEST PSAP> as expected.	<10 min	HHMM MT - PSAP Un-Abandoned HHMM MT - Test call generated from AT&T to <TEST PSAP>; call routed to <TEST PSAP> as expected with good ANI/ALI & Voice.  <PASS/FAIL>



# ***i3\_ESRP\_Interoperability\_Alpha\_Testing***

**Document Description:**

This document defines i3 ESRP Alpha Test Cases

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# *i3\_ESRP\_Interoperability\_Alpha\_Testing*

## **1.0 i3 Alpha Test Process**

The i3 Alpha Test Process is designed to test i3 call flows and features between the AT&T IP based ESInet and vendor's Terminating ESRP (Term-ESRP).

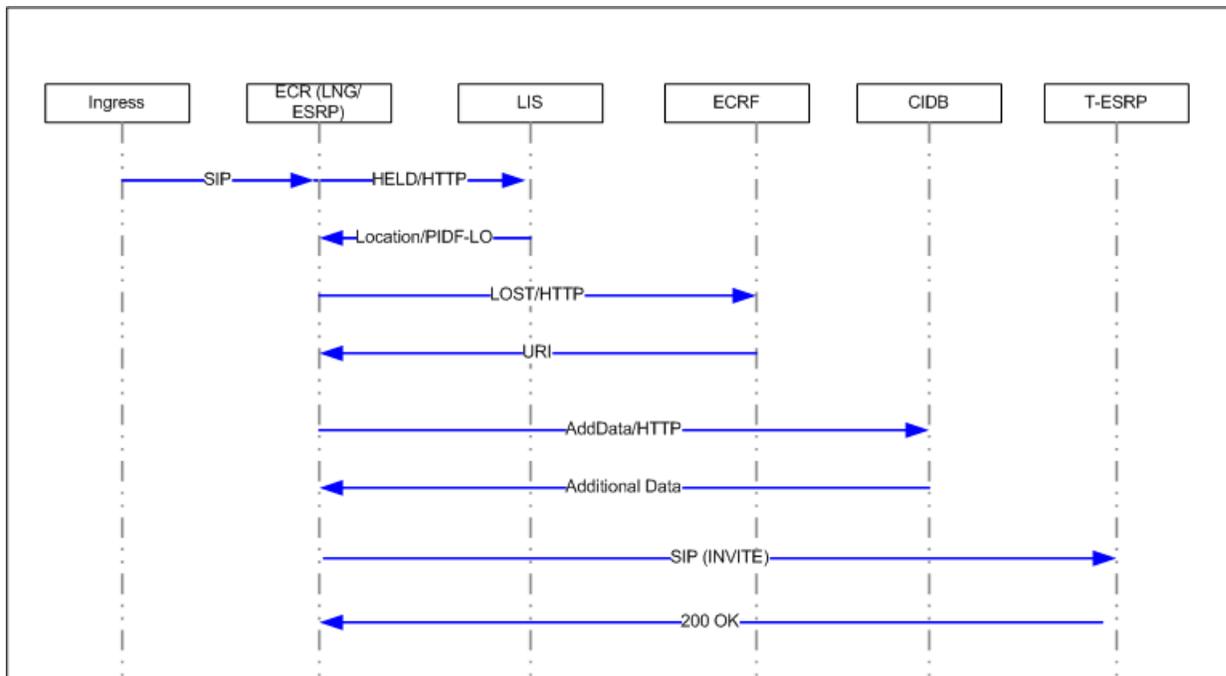
This version is the first pass, testing the elements involved in routing, voice path, and interfaces with other i3 elements. Additional plans will be created to test additional features and elements outside the scope of the LNG and ESRP.

## **1.1 Test Process**

Test cases defined in this document will be executed within a lab environment.

## 2.0 Test Scenarios: ESInet-to-Term-ESRP

Calls will be placed from AT&T ESInet (IP based Network), terminating to Term-ESRP. Calls will be directed from AT&T SBC (Session Border Controller) to AT&T Lab.



**Figure 1 – i3 interfaces**

The primary focus of the Test Scenarios in this document will be to test basic i3 functionality and the interfaces shown in the above sequence diagram.

## 2.1 i3 Interfaces

### 2.1.1 LIS, ECRF, and CIDB interface– All Success

This test verifies that the interfaces to the LIS, ECRF, and CIDB are all operating properly and that the components are configured correctly for the given location and ANI.

Steps:

1. Place an emergency call to the Term-ESRP.
2. Hang up the call.

Expected Results:

1. Verify that the ANI of the caller is sent in the HELD protocol request to the LIS.
2. Verify that the LIS responded with PIDF-LO containing the location of the call.
3. Verify that the ECRF is queried using the LOST protocol interface.
4. Verify that the ECRF responds with a URI. This URI may be from the Forest Guide which redirects to the next ECRF to query.
5. Verify that a request is sent to the CIDB for Additional Data.

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6. Verify that the response is received with additional data about the call.

### **2.1.2 LIS, ECRF, and CIDB interface– LIS fails**

This test verifies that the ESRP will build the PIDF-LO in the case of a failed request to the LIS.

Steps:

1. Take the LIS offline or change the provisioning to cause it to return an error.
2. Place an emergency call.
3. Hangup the call.

Expected Results:

1. Verify that even though the LIS request failed, the call was still routed to the correct PSAP.
2. Verify that the ESRP built the PIDF-LO from location data found in SRDB.
3. Verify that the ECRF is queried if X/Y was available in SRDB.

### **2.1.3 LIS, ECRF, and CIDB interface– ECRF fails**

This test verifies that the ESRP will SRDB route in the event that a request to the ECRF fails or times-out.

Steps:

1. Take the ECRF offline or change the provisioning to cause it to return an error.
2. Place an emergency call.
3. Hangup the call.

Expected Results:

1. Verify that even though the ECRF request failed, the call was still routed to the correct PSAP. ESRP will SRDB route the call.

### **3.1.4 LIS, ECRF, and CIDB interface– CIDB fails**

This test verifies that the ESRP will ignore CIDB failures and continue to INVITE the Term-ESRP without additional data.

Steps:

1. Take the CIDB offline or change the provisioning to cause it to error.
2. Place an emergency call.
3. Hangup the call.

Expected Results:

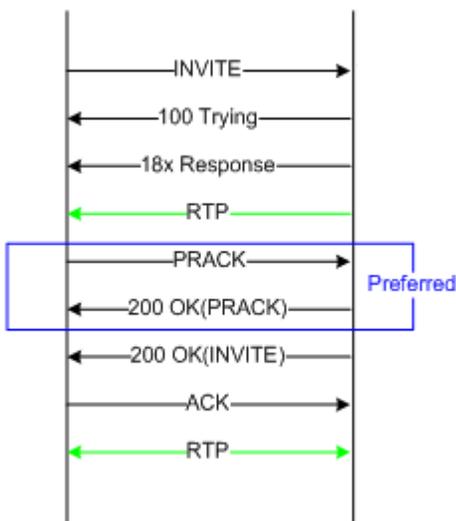
1. Verify that even though the CIDB request failed, the call was still routed to the correct PSAP.

## 2.2 Call Setup Requests

The Term-ESRP can respond to an INVITE with a SIP response 180, 183 or 200 for normal call handling. Optionally, the Term-ESRP may also send a 180 before the 183 or the 200.

### 2.2.1 Emergency Call, Response 18x

This test verifies an Emergency Call can be setup from ESInet to Term-ESRP with ring back from the Term-ESRP end using 18x. It is answered by Term-ESRP end.



Steps:

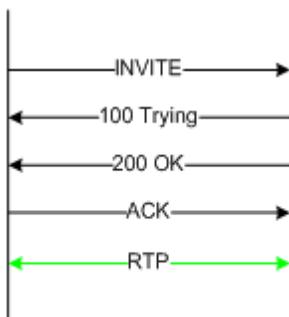
1. Place an Emergency Call from ESInet to Term-ESRP.
2. Answer the call at the Term-ESRP end.

Expected Results:

1. Verify call flow shown above.
2. Verify 2-way media path.

### 2.2.2 Emergency Call, 200 OK

This test verifies an Emergency Call can be setup from ESInet to Term-ESRP. Term-ESRP responds with 200 OK with SDP. It is answered by Term-ESRP end.



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Steps:

1. Place an Emergency Call from ESInet to Term-ESRP.
2. Answer the call at the Term-ESRP end.

Expected Results:

1. Verify call flow shown in figure 1.
2. Verify 2-way media path.

### **2.2.3 Wire-line Emergency Call**

This test verifies a wire-line originated Emergency Call can be setup from ESInet to Term-ESRP. It is answered by Term-ESRP.

Steps:

1. Place a wire-line Emergency Call from ESInet to Term-ESRP.
2. Answer the call at the Term-ESRP end.

Expected Results:

1. Verify call flow shown in 3.2.1 or 3.2.2.
2. Verify that the call type is reflected in the URL request to the LIS.
3. Verify that call type (POTS) is included in the Additional Data in the INVITE to the Term-ESRP.
4. Media path is established in both directions.
5. Verify LIS/CIDB data displays at Term-ESRP and proper call type is shown.

### **2.2.4 Wire-less Emergency Call**

This test verifies a wire-less originated Emergency Call can be setup from ESInet to Term-ESRP. It is answered by Term-ESRP. No bid back to the LIS/CIDB will occur in this phase of testing for WRLS Phase 2 info

Steps:

1. Place a wire-less Emergency Call from ESInet to Term-ESRP.
2. Answer the call at Term-ESRP end.

Expected Results:

1. Verify call flow shown in 3.2.1 or 3.2.2.
2. Verify that the call type is reflected in the URL request to the LIS.
3. Verify that call type (Wireless) is included in Additional Data in the INVITE to the Term-ESRP.
4. In this phase, the Term-ESRP will not be able to make a dispatch query to update location data.
5. Media path is established in both directions.
6. Verify LIS/CIDB phase 1 data displays at Term-ESRP and proper call type is shown.

### **2.2.5 VoIP Emergency Call**

This test verifies a VoIP originated Emergency Call can be setup from ESInet to Term-ESRP. It is answered by Term-ESRP.

Steps:

1. Place a VoIP Emergency Call from ESInet to Term-ESRP.
2. Answer the call at Term-ESRP end.

Expected Results:

1. Verify call flow shown in 3.2.1 or 3.2.2.
2. Verify that the call type is reflected in the URL request to the LIS.
3. Verify that call type (VOIP) is included in Additional Data in the INVITE to the Term-ESRP.
4. Media path is established in both directions.
5. Verify LIS/CIDB data displays at Term-ESRP and proper call type is shown.

### **2.2.6 Emergency Call, DTMF digits verification**

This test verifies DTMF digits can be heard in both directions, and that call transfers and actions can be initiated by DTMF.

Steps:

1. Place an Emergency Call from ESInet to Term-ESRP.
2. Answer the call at Term-ESRP end.
3. Term-ESRP user should bridge on **PSTN XXX-XXX-XXXX**. DTMF will be sent back to the ESRP to initiate transfer.
4. When call is picked up by **XXX-XXX-XXXX**, an announcement will be played asking caller to press 1 for digit verification
5. Caller should press 1 and will hear the message “digit verified”

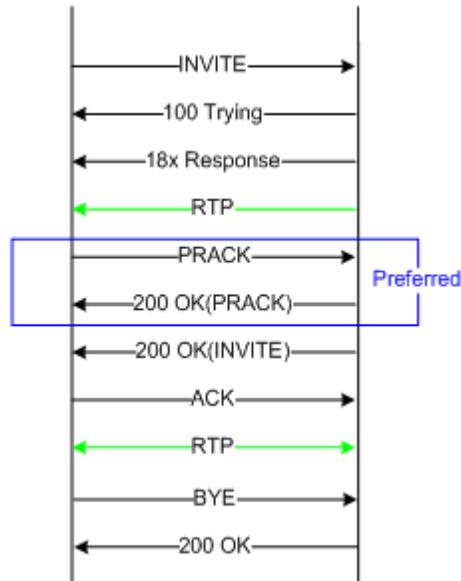
Expected Results:

1. Verify call flow shown in 3.2.1 or 3.2.2.
2. Media path is established in both directions.
3. DTMF digits are heard in both directions, initiating successful transfers and announcements.

## 2.3 Call Termination

### 2.3.1 Request Termination, ESRP

This test verifies an Emergency Call can be setup from ESInet to Term-ESRP and terminated from the ESRP.



Steps:

1. Place an Emergency Call from ESInet to Term-ESRP.
2. Answer the call at Term-ESRP end.
3. Hang up the request from caller end.

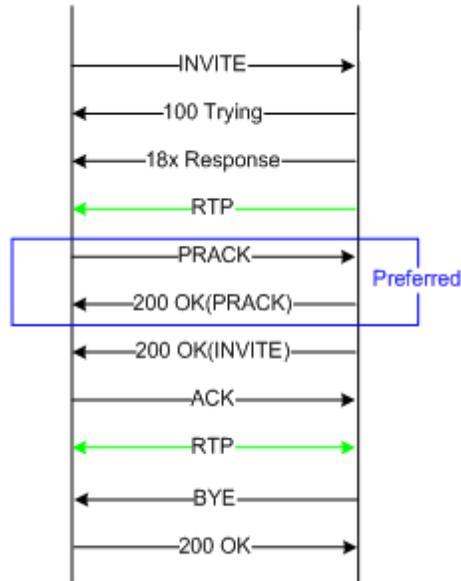
Expected Results:

1. Verify call flow shown above.
2. Verify that INVITE is an i3 INVITE
3. Media Path is established in both directions.
4. Call is terminated successfully.

### 2.3.2 Request Termination, Term-ESRP

This test verifies an Emergency Call can be setup from ESInet to Term-ESRP and terminated from the Term-ESRP. It is terminated by Term-ESRP.

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Steps:

1. Place an Emergency Call from ESInet to Term-ESRP.
2. Answer the call at Term-ESRP end.
3. Hang up request from Term-ESRP end.

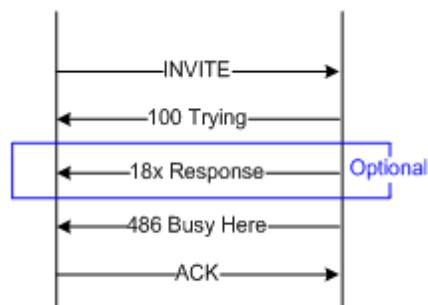
Expected Results:

1. Verify call flow shown above.
2. Media Path is established in both directions.
3. Call is terminated successfully.

## **2.4 Call Setup Failure**

### **2.4.1 Term-ESRP Busy**

This test verifies an Emergency Call receives a 486 busy here from Term-ESRP for all typical busy conditions.



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Steps:

1. Place an Emergency Call from ESInet to a busy Term-ESRP.
  - Hint: You can log out of Power 9-1-1 target position to generate a 486 response.

Expected Results:

1. ESInet issues an INVITE including Media SDP.
2. Term-ESRP responds with 100 Trying.
3. Term-ESRP responds with a 486 Busy Here.
4. ESRP ACKs and request is terminated.

**Note:** Please note that Term-ESRP should not play busy tones to the caller. If ESInet receives a 486, it will perform alternate routing.

### **2.4.2 Primary PSAP Abandoned, Abandonment Routed Request to Term-ESRP**

This test verifies an Emergency Call can be setup from ESInet to Term-ESRP which was routed with routing method of Abandonment Routed. Primary destination is a PSAP in abandoned mode. Call is redirected to Term-ESRP and answered.

Steps:

1. Abandon a PSAP.
2. Place an Emergency Call from ESInet to the Abandoned PSAP.
3. Answer the call at the alternate destination (Term-ESRP).

Expected Results:

1. Verify call flow shown in 3.2.1 or 3.2.2.
2. Verify that the call is routed to the alternate destination
3. Media path is established in both directions.

## **2.5 State Management**

### **2.5.1 OPTIONS Heartbeat Monitor – Success**

This test verifies that heartbeat (OPTIONS) messages originated by ESInet are responded by Term-ESRP.

Steps:

1. Enable heartbeat from ESInet to Term-ESRP. This is a function of the MOP.

Expected Results:

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1. Verify successful responses to OPTIONS.

### **2.5.2 OPTIONS Heartbeat Monitor – Failure**

This test verifies that if the heartbeat (OPTIONS) messages are unsuccessful, ESInet logs an alarm.

Steps:

1. Take Term-ESRP out of service.
2. Enable heartbeat on ESInet for Term-ESRP.
3. Have ESInet send OPTIONS to Term-ESRP.

Expected Results:

1. ESInet doesn't receive 200 level responses.
2. ESInet logs an alarm.
3. ESInet continues sending OPTIONS to the Term-ESRP.

## **2.6 Call Routing**

### **2.6.1 i3 Call Flows**

#### **2.6.1.1 Spatial Boundary mis-provisioned**

This test verifies that if the spatial polygon provisioned for the ECRF is outside the location of the call, that the ESRP will selective route to the correct PSAP.

Steps:

1. Change the boundary for the PSAP in ECRF to be outside the location of the call.
2. Make an emergency call.
3. Hang up the call.

Expected Results:

1. Verify that a non-i3 response was received from the ECRF.
2. Verify that the ESRP selective routed the call via SRDB to the correct PSAP.

#### **2.6.1.2 ITG Set to SRDB routing to i3 PSAP**

This test verifies that even if the ITG is set to selective routing, if the destination PSAP is an i3 PSAP, then ECRF routing will be completed and an i3 INVITE will be sent to the PSAP.

Steps:

1. Set the ITG to Selective routing.
2. Setup the PSAP as an i3 PSAP within MP.
3. Make an emergency call.
4. Hang up the call.

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Expected Results:

1. Verify that ECRF routing is performed.
2. Verify that an i3 INVITE is sent to the Term-ESRP.

### **2.6.1.3 ITG Set to ECRF routing to non-i3 PSAP**

This test verifies that when i3 routing is completed and the PSAP routed to is a non-i3 PSAP, that SRDB routing is completed and the call is routed to the correct PSAP.

Steps:

1. Set the ITG to ECRF routing.
2. Setup the PSAP as a non-i3 PSAP within MP.
3. Make an emergency call.
4. Hang up the call.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify that SRDB routing is completed.
3. Verify that a non-i3 INVITE is sent to the PSAP.

## **2.6.2 i3 Bridging**

For call flow information and sequence diagrams for i3 bridging scenarios, please refer to the *IENV i3 Functional Specification*.

### **2.6.2.1 Bridge i3 PSAP to CAMA PSAP**

This test verifies that an i3 PSAP can bridge a CAMA PSAP onto the bridge.

Steps:

1. Make an emergency call to an i3 PSAP.
2. Bridge on CAMA PSAP.
3. Hangup call from i3 PSAP.
4. Confirm Voice path between caller and CAMA PSAP.
5. Hangup call from CAMA PSAP.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify CAMA PSAP is added to bridge with 3 way talk path.
4. Verify 2-way talk path after hangup from i3 PSAP.

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### **2.6.2.2 Bridge i3 PSAP to RFAI PSAP**

This test verifies that an i3 PSAP can bridge a RFAI PSAP onto the bridge.

Steps:

1. Make an emergency call to an i3 PSAP.
2. Bridge on RFAI PSAP.
3. Hangup call from i3 PSAP.
4. Confirm Voice path between caller and RFAI PSAP.
5. Hangup call from RFAI PSAP.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify RFAI PSAP is added to bridge with 3 way talk path.
4. Verify 2-way talk path after hangup from RFAI PSAP.

### **2.6.2.3 Bridge i3 PSAP to PSTN TN**

This test verifies that an i3 PSAP can bridge a PSTN destination onto the bridge.

Steps:

1. Make an emergency call to an i3 PSAP.
2. Bridge on a PSTN destination.
3. Confirm 3 way talk path.
4. Hangup call from PSTN destination.
5. Confirm Voice path between caller and i3 PSAP.
6. Hangup call from i3 PSAP.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify PSTN destination is added to bridge with 3 way talk path.
4. Verify 2-way talk path after hangup from PSTN destination.

### **2.6.2.4 Bridge i3 PSAP to a Foreign PSAP**

This test verifies that an i3 PSAP can bridge a foreign PSAP onto the bridge.

Steps:

1. Make an emergency call to an i3 PSAP.

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2. Bridge on a foreign PSAP.
3. Confirm 3 way talk path.
4. Hangup call from i3 PSAP.
5. Confirm Voice path between caller and foreign PSAP.
6. Hangup call from foreign PSAP.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify foreign PSAP is added to bridge with 3 way talk path.
4. Verify 2-way talk path after hangup from i3 PSAP.

### **2.6.2.5 Bridge i3 PSAP to i3 PSAP**

This test verifies that an i3 PSAP can bridge another i3 PSAP onto the bridge.

Steps:

1. Make an emergency call to an i3 PSAP.
2. Bridge on another i3 PSAP.
3. Confirm 3 way talk path.
4. Hangup call from the first i3 PSAP.
5. Confirm Voice path between caller and 2<sup>nd</sup> i3 PSAP.
6. Hangup call from caller.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify 2<sup>nd</sup> i3 PSAP is added to bridge with 3 way talk path.
4. Verify 2-way talk path after hangup from caller.

### **2.6.2.6 Drop non-i3 PSAP participant from bridge**

This test verifies that a non-i3 participant can be dropped from a bridge and that a participant can be dropped in any order. The order doesn't need to be the reverse order of the order in which they were added.

Steps:

1. Make an emergency call to an i3 PSAP.
2. Bridge on a non-i3 PSAP.
3. Confirm 3 way talk path.
4. Bridge on a PSTN destination.
5. Confirm 4 way talk path.
6. Drop non-i3 PSAP from bridge.
7. Confirm 3 way talk path.
8. Hangup call from caller.

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Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify non-i3 PSAP is added to bridge with 3 way talk path.
4. Verify that 1<sup>st</sup> bridged on participant can be dropped from bridge.
5. Verify call is terminated after caller hangs-up.

### **2.6.2.7 Drop PSTN destination participant from bridge**

This test verifies that a PSTN destination participant can be dropped from a bridge and that participants can be dropped in any order. The order doesn't need to be the reverse order of the order in which they were added.

Steps:

1. Make an emergency call to an i3 PSAP.
2. Bridge on a PSTN destination.
3. Confirm 3 way talk path.
4. Bridge on a non-i3 PSAP.
5. Confirm 4 way talk path.
6. Drop the PSTN destination from bridge.
7. Confirm 3 way talk path.
8. Hangup call from caller.

Expected Results:

1. Verify that ECRF routing is performed.
2. Verify SIP REFER message sent from T-ESRP to ESRP.
3. Verify that 1<sup>st</sup> bridged on participant can be dropped from bridge.
4. Verify call is terminated after caller hangs-up.