Williamson County 9-1-1

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EXHIBIT 10.2

NG-911, Inc. FAS Plan

Coordinate with Exhibit 10.2 Integrated Test Plan

July 2014

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1.0 Test Objectives and Guidelines

1.1 Scope of document

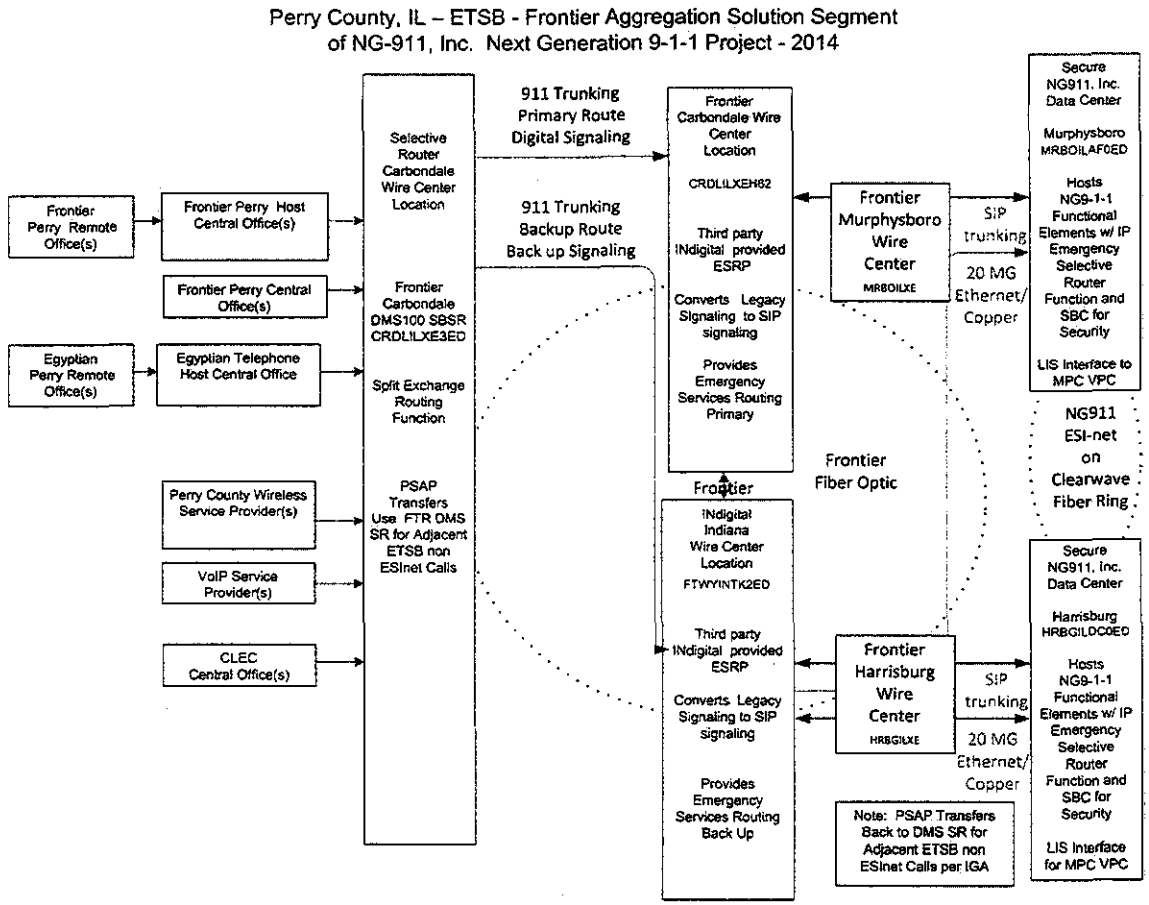
The intent of this document is to define the test procedures for Acceptance Testing between the FRONTIER Aggregation Service (FAS) 9-1-1 Access network, components provided by INdigital, and the NG9-1-1 Functional Elements (FEs) to the NG 9-1-1 PSAPs in Perry County. All testing shall be coordinated by NG 9-1-1, Inc., the selected 9-1-1 Service Provider (SSP), in cooperation with FRONTIER Communications and INdigital.

The purpose of this effort is to verify that the FAS network will deliver 9-1-1 calls using equipment located in Carbondale and Indiana, via SIP protocol to the NG9-1-1 Data Centers and the NG9-1-1 FEs to the correct PSAPs. Test calls will then be placed by FRONTIER working with the Access Carriers they represent to confirm with NG9-1-1, Inc. and the Perry County PSAPs that the correct ANI and ALI are received at the correct PSAP. NG 9-1-1, Inc., FRONTIER and INdigital will work together to resolve any integration issues that arise during testing.

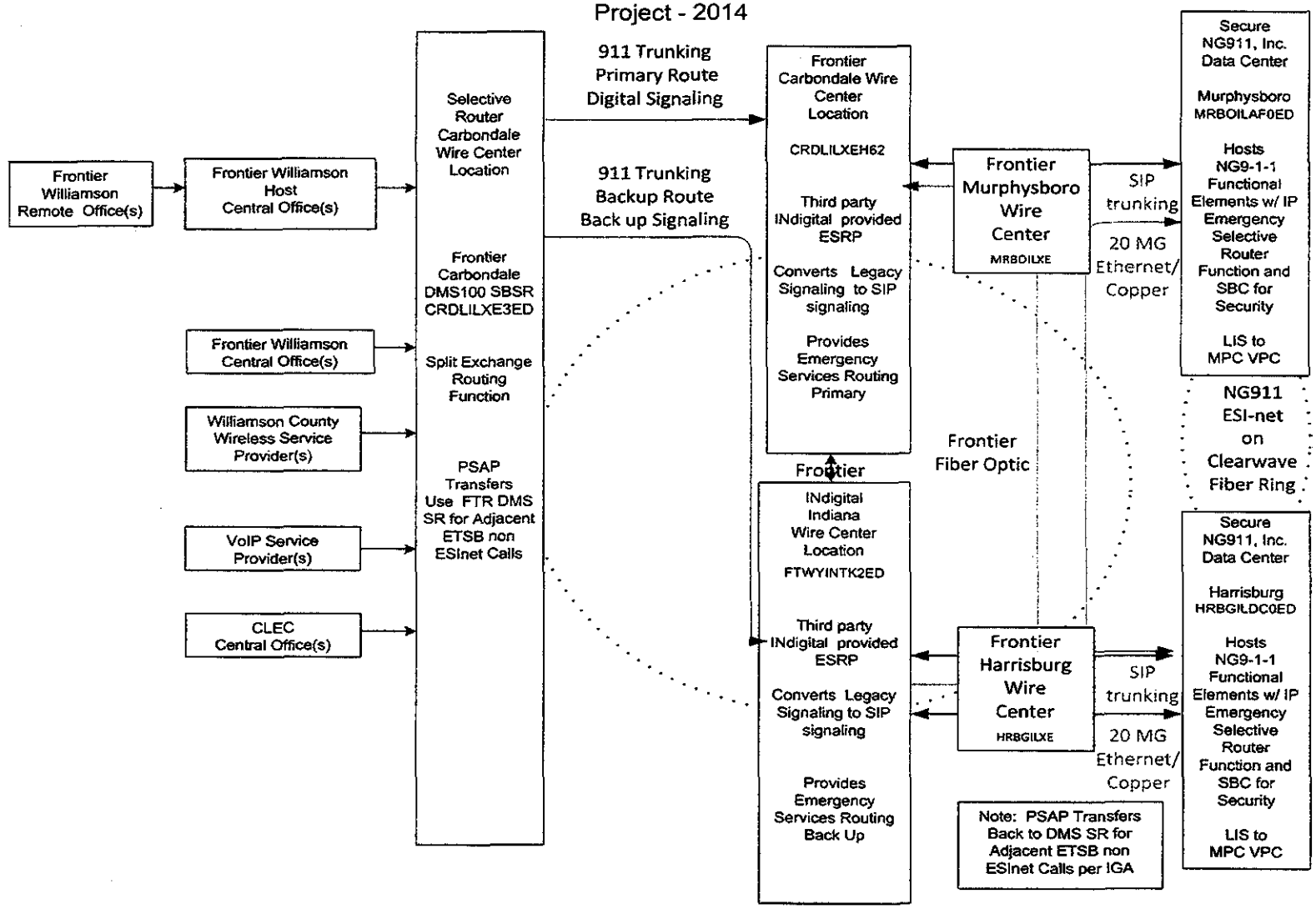
This FAS Test Plan will be used in conjunction with the NG-911, Inc., and Integrated Test Plan Exhibit 10.1.

Exhibit 10 Network Diagrams of the ICC filing includes an end to end Diagram. The portion of the Diagram that represents the FAS related Access Carriers through to the NG9-1-1 Data Centers, FAS is further diagramed in detail in the following Figure 1.1.1.

Figure 1.1.1 FAS Diagram



Williamson County, IL – ETSB - Frontier Aggregation
Solution Segment of NG-911, Inc. Next Generation 9-1-1
Project - 2014



1.2 Establish Connectivity

NG9-1-1, Inc. will provide appropriate personnel on-site to test at each PSAP. FRONTIER and NG9-1-1, Inc. will establish IP connectivity between FRONTIER and the NG 9-1-1, Inc. Selective Routers. FRONTIER and NG9-1-1, Inc. will configure the INdigital ESRPs and PSAP Gateways (referenced herein for ease of communications as IP Selective Routers or IP SR's to process 9-1-1 test calls from the FRONTIER network to each PSAP.

1.3 Testing

FRONTIER will provide test numbers per Access Carrier per rate center that they represent in the FAS solution to NG9-1-1, Inc. to be loaded into the Database for use during testing. NG9-1-1, Inc. is requesting the test numbers from each Access Carrier using the FAS solution. FRONTIER agreed to cooperatively assist with obtaining such numbers. Both FRONTIER and NG9-11, Inc. will ensure the numbers are loaded into the Frontier Databases and the NG-911, Inc. GIS Databases prior to the beginning of testing,

1.3.1 Landline Test

A 9-1-1 landline test call will be placed to each NG9-1-1, Inc. SR from the FAS RBOC, ILEC, RLEC and CLEC Carriers from each end office trunk group from the test numbers to the designated PSAP prior to any change in the network. This will establish a baseline of expectation. The network results for call completion will be documented.

- The baseline path will be made busy and the calls will be placed from the same originating central offices per rate center and test number through the FAS solution to the designated PSAP.
- The Primary INdigital path to the NG 9-1-1, Inc. SR location will be made busy and the calls will be re-originated and verified that they route to the correct PSAP.
- NG 9-1-1, Inc. will make the Primary Data Center Route Busy and the calls will be re-originated to the destined PSAP.

- Permutations and combinations will continue until all diverse paths have been tested. At a minimum a call will be made from each Class of Service from each originating Carrier originating location.
- In each case the PSAP will :
  - Verify receipt of ANI information for landline offices for voice and TTY.
  - Verify receipt of ALI information for landline offices for voice and TTY.

1.3.2 Wireless Test

A 9-1-1 Wireless Test call placed from each Wireless Carrier or their representative

- Verify receipt of Emergency Services Routing Key (ESRK) and callback number
- Verify receipt of ALI information
- FRONTIER and NG 9-1-1, Inc. will document configuration settings so effort is repeatable at other sites.

1.3.3 Voice over Internet Protocol (VoIP) Test

A 9-1-1 VoIP Test call placed from each VoIP Carrier or their representative.

- Verify receipt of ANI information.
- Verify receipt of ALI information.
- FRONTIER and NG 9-1-1, Inc. will document configuration settings so effort is repeatable at other sites.

Test Case #	Test Description	Expected Test Outcome Notes	Results

1.4 Site Information

The Access Carriers using FAS will not be re-terminating their trunking from the DMS100 Tandem routes and trunk groups into the NG9-1-1 Data Centers as planned in later FAS Phases. FAS is a Network reconfiguration and the Test calls merely represent the successful use of the new NG 9-1-1 GIS database and NG 9-1-1 FEs to route successfully to the new NG9-1-1 PSAPs as diagramed. Access trunks terminate to the same FRONTIER DMS 100 that serves as the existing FRONTIER Legacy Selective Router, only the functions of the Selective Routing are moved into the NG9-1-1 network to NG-911, Inc.'s Data Center FEs to the new NG9-1-1 PSAPs equipment.

It should be noted that Clearwave does provide complete access diversity. Any Carrier who chooses to connect to the NG9-1-1 Data Centers in a diverse fashion is welcome to do so. FAS is a convenient transition step toward NG9-1-1 for most Carriers. All Carriers with SIP Access Trunking are encouraged to use the same access methodology as Clearwave to achieve full end to end diversity.

Benefits include:

- Solution gives the Access Carriers additional time to build and test alternate trunking.
- Solution introduces Digital and SIP Trunking in into the new FAS network.
- uses GIS Location Information for its Database which improves Location Accuracy
- Allows for transfer of significant information along with the 9-1-1 call when required to another PSAP or a First Responder.
- provides local Data Center Diversity
- The Session Border Controller can protect the PSAPs and network from Overload and Security Threats.

The Frontier Carbondale DMS100 routes to the diverse INdigital FAS in Carbondale and Indiana via digital trunking. Inside the INdigital FAS, the 9-1-1 calls are converted to SIP, using selected FEs of the newer NG9-1-1 architecture. Those FEs serve as a Legacy Network Gateway (LNG) and Emergency Services Routing Proxy (ESRP) to send the 9-1-1 SIP calls to the two (2) Diverse Session Border Controllers in Murphysboro and Harrisburg where the calls with be handled by the remaining FEs of the NG9-1-1 Architecture .

The information below will be completed each time a test is made. This form can be modified to suit the actual test to be made. Refer to the details in the Exhibit 10.1 NG9-1-1 Integrated Test Plan document for more specific tests to be performed.

Carrier Name	
Contract No.	
System Component Name Number CLLI	
Customer County PSAP	
Sites Addresses	
Sites Managers Names	
Sites Managers Phone Numbers	
Sites Manager Cell Phone Number	
Sites Managers Emails Addresses	
NOCs Contacts Names	
NOCs Contacts Phone Numbers	
Split Exchange Yes or No	

Signaling	
Transport and Bandwidth	
If Yes, Specify the PSAPs, Primary and Alternate, and Disaster Recovery	
Test Number in Databases	
Test Pass/Fail Details and Time	

1.5 Test System Configuration

FRONTIER to INdigital ESRP interface.

Lines/Trunks	Quantity	Comments	
E9-1-1 Trunks			
SIP 911 interface			
Database			
T1 span Legacy SR to SIPME(s)			
PSTN access for ESRP in Carbondale			
SS7 spans (Legacy SR to SIPME)			
Primary IP Network connectivity			
Backup IP connectivity			
Backup ESRP in Indiana			
TOTAL LINES/TRUNKS			

INdigital ESRP to the NG9-1-1 Inc. Data Centers via Carrier POI and then the Dual SBCs into the FEs. The testers will be able to see them each work and or fail via using NOC tools.

Lines/Trunks	Quantity	Comments	
Frontier & Access Carrier E9-1-1 Trunks			
Clearwave SIP 911 Trunks		Access Carriers w	

		SIP	
FAS DMS 100 Tandem			
FAS Database			
FAS SS7 Network			
FAS Copper Fiber Ring			
INdigital Carbondale ESRP			
INdigital Indiana ESRP			
NG-911, Inc. Carrier POIs			
SBCs			
ECRFs			
ESRPs			
Logging and Recording			
Monitoring			
PSAPs			
Call Delivery			
ALI Deliver			
IP network			
Media Server/Transfer			
Primary PSAP			
Back up			
Back up			
Back up (applicable Perry)			

1.6 Schedule of Events

General Plan:
Agreed Day of Week:
Agreed Maintenance Window:

Agreed Test Tools:
Agreed Communications Bridges:
NOCs Ready: List and provide reach information and contacts

Event	Date
Install Begin	
Testing Begin	
Testing Complete	
Grade of Service Observed:	
3 Week Grade of Service Goal Reached	
Remove old SR to PSAP Routing	

2.0 Equipment and Software

2.1 Equipment, Software Version

---TBD---

3.0 Test Requirements

3.1 Functional Checklist

The functional test checklist is included in this section. Each item will be tested based on the availability of test circuits and interfaces.

Requirements Codes
The following codes will be used to indicate pass, fail, or not applicable for each application module feature. The designated code for each requested feature is listed in the "**Test Code**" column.

When the **TF** or **RTF** code is used, the Tester must also insert an explanation of the planned correction action in the **Comments** column.

TP	Test Passed
TF	Test Failed
RTP	Retest Passed
RTF	Retest Failed
NA	This feature is not applicable in Customer Systems

Note: In this the section, the Test teams will reference the 10.1 Test names and numbers as appropriate

Test Case #	Test Description	Expected Test Outcome Notes	Results

3.1.1 Power and Connectivity Requirements

Power Connections

Refer to the 10.1 Test Case Names and Numbers where appropriate.

Test #	Description	Test Code	Results Comments
1.	Use the power connections diagram to verify that all pre-installed power connections are still firmly plugged in.		
2.	Verify that power connections of all elements of the system are safely connected and that there is no risk of a connection to be accidentally disconnected		
3.	Verify that all elements of the solution are powered on.		
4.	Verify that the Central Equipment is connected to the building ground. Test this ground with voltmeter (should be close to 0 Volts or current building ground voltage) and measure resistance (close to 0 Ohms)		
5.	Verify performance of backup power Generator turn-up time Battery Survivability time		

3.1.2 Remote Access & Monitoring

Refer to the 10.1 Test Case Names and Numbers

Test #	Description	Test Code	Comments

1.	Verify that you have the proper external IP addressing and connectivity to the Internet (remote system management.		
2.	NG 911, Inc. contacts the INdigital TSG group at 1-877-469-2010. Have a member of the customer support team login to the system and verify that they are able to connect to remote systems.		
3.	NG 911, Inc., contacts the FRONTIER NOC group at 1-. 877-245-3511. Have a member of the NOC team login to the system and verify that they are able to connect to the devices. Note: If Frontier needs another Carrier to Participate, they will name the Carrier and either Contact them or set up the arrangement.		
4.	FRONTIER contacts the Access Carrier NOC group at 1-877-245-3511. Have a member of the NOC team login to the system and verify that they are able to connect to the devices.		
5.	NG9-1-1, contacts the CSI PSAP Manager and/or IT contact for the PSAP group at 618-534-4911. Have a member of the Data Center and/or PSAP team login to the system and verify that they are able to connect to the devices.		
6.	Confirm remote access via a Conference Bridge.		
7.	Monitoring system - verify all critical hardware software have been added to Monitoring.		
8.	Verify all Hand held or PC monitoring solutions are operational.		

9.	Critical equipment list: (LIST HARDWARE HERE)		
10.	Ensure all Reporting Capabilities are turned on for Tracking		

3.1.3 FRONTIER 911 Network Testing

Refer to the 10.1 Integrated Test Case Names and Numbers

Lines/Trunks	**Test Code**	**Comments**
E9-1-1 Trunks Test circuit continuity Audio Quality Trunk Failover		
SIP 911 interface Test circuit continuity Audio Quality Trunk Failover		
Database Data upload to onsite database Wireline & wireless test		
T1 span Legacy SR to SIPME(s) Test circuit continuity Audio Quality Trunk Failover		
PRI span(s) Legacy SR to SIPME		

Test circuit continuity Audio Quality Trunk Failover		
SS7 spans (Legacy SR to SIPME) Test circuit continuity Audio quality Trunk failover		
Primary IP Network connectivity Test circuit continuity Ping times Bandwidth load latency		
Backup IP connectivity Test circuit continuity Ping times Bandwidth load latency		
Backup ESRP in Indiana ,Failover call router Confirm call delivery		

Audio quality		

3.1.4 Frontier ESRP to NG-911, Inc. ESRP testing

Refer to the 10.1 Test Plan for Test Case Names and Numbers (repeat multiple times with duplex devices).

Lines/Trunks	**Detail**	**Test code**	**comments**
E9-1-1 Trunks Test circuit continuity Audio Quality Trunk Failover			
SIP 911 interface Test circuit continuity Audio Quality Trunk Failover			
Database (verify onsite system)			
IP network Test circuit continuity Ping times Bandwidth load Latency			
Clearwave Fiber Ring Data		Note Clearwave NOC	

Center to PSAPs Fiber Network Ethernet Connectivity Test Phase Test Jitter Test Latency Bandwidth Load Ping Times Document		needed on end to end calls nearly all the time. Verify right tests.	
Call Delivery Audio Quality Call Routing Failover ALI information			
ALI Deliver Wireline Wireless			
IP network Primary and backup			

3.1.5 PSAP 911 testing

1.	**Test Description**	**Test Code**	**Comments**
2.	Establish/verify test numbers are inserted into data bases and are ready to be used in the Access Carrier Network.		
3.	Place wireline calls (list exchanges below)		
4.	Confirm voice delivery (list exchanges below)		Add Rows for Each Company
5.	Confirm ALI data delivery (list exchanges below)		
6.	Place wireless calls (list carriers)		Add rows for each PSAP
7.	Verify Phase 2 delivery of Wireless Call		
8.	Verify receipt of ESRK and call back number in ALI display		
9.	Place test calls from CLECs & VOIP providers from sampling (List Carriers).		
10.	Verify ALI delivery of CLEC & VOIP providers.		
11.	Verify ALI delivery of nomadic VOIP provider		
12.	Verify backup systems (fail primary delivery methods) list MOP of test		
13.	Verify call overflow methods		
14.	Verify default routing		

15.	Verify Call transfer utilizing 911 network		
16.	Verify ALI data delivery on transferred call		

4.0 Site Acceptance

We hereby certify that the present document is complete (no missing page) and that all test procedures have been executed and passed as per associated expected results or that all tests have been executed and some deviations were observed

	All test were executed and passed
	All test were executed, however there was the following deviations:

NG9-1-1, Inc. Test Representative/Witness

Name:	
Title:	
Signature:	
Date:	

Name:	
Title:	
Signature:	
Date:	

FRONTIER Test Representative /Witness

Name:	
Title:	
Signature:	
Date:	

INdigital Test Representative/Witness

Name:	
Title:	
Signature:	
Date:	

Access Carrier Test Representative/Witness