

**BEFORE THE ILLINOIS COMMERCE COMMISSION**

**Docket No. 13-0669**

**Direct Testimony of Mark Neinast  
On Behalf of AT&T Illinois and AT&T Mobility**

**AT&T Exhibit 1.0**

**February 21, 2014**

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1                                   **DIRECT TESTIMONY OF MARK NEINAST**

2                                   **ON BEHALF OF AT&T**

3  
4   **I.    INTRODUCTION**

5   **Q.    PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

6   A.    My name is Mark Neinast. My business address is 2701 N Central Expy, Richardson,  
7           TX 75080.

8  
9   **Q.    BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

10   A.    I am an Associate Director – Network Regulatory in AT&T’s Network Operations  
11           Department.

12  
13   **Q.    FOR WHICH PARTIES ARE YOU PROVIDING THIS TESTIMONY?**

14   A.    Illinois Bell Telephone Company (“AT&T Illinois”) and New Cingular Wireless PCS,  
15           LLC (“AT&T Mobility”).

16  
17   **Q.    PLEASE DESCRIBE YOUR JOB RESPONSIBILITIES.**

18   A.    My primary responsibility is to represent various AT&T operating companies in the  
19           development of network policies, procedures, and plans from a technical and regulatory  
20           perspective. I assist in developing corporate strategy associated with 9-1-1,  
21           interconnection, switching, Signaling System 7, call-related databases, and emerging  
22           technologies such as Internet Protocol (“IP”)-based technologies and services. I am also  
23           responsible for representing the company’s network organization in negotiations,

24 arbitrations, and disputes that AT&T operating companies have with Competitive Local  
25 Exchange Carriers (“CLECs”) and wireless carriers.

26

27 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK**  
28 **EXPERIENCE.**

29 A. I have a Bachelor of Science degree in Business Administration from the University of  
30 Texas at Dallas, with a double major in Management Information Systems and  
31 Behavioral Management. I have been employed with AT&T companies for over 38  
32 years, primarily in the network organization. This includes seven years in central offices  
33 as a technician. I also spent two years as a training instructor for electronic switching  
34 systems and four years managing technicians in central offices and a Network Operations  
35 Center (“NOC”). I worked as a staff manager for the North Texas Network Operations  
36 Division for five years. In that role, I supported NOC functions and managed major  
37 switching system projects. Subsequently, as an Area Manager in a NOC Translations  
38 Center for over seven years, I was responsible for managing the switch translations for  
39 over 100 switches. I also successfully managed other major network projects, including  
40 over 60 analog-to-digital switch conversions and 16 analog-to-digital 9-1-1 conversions,  
41 as well as the implementation of Local Number Portability in all of these switching  
42 systems.

43

44 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

45 A. The purpose of my testimony is to provide an assessment of the next generation 9-1-1  
46 service to be deployed in Jackson County and the impact of that deployment on AT&T.

47 AT&T Mobility has end users in Jackson County and is directly affected by this proposal.  
48 While there are no AT&T Illinois landline end users immediately impacted by the  
49 Jackson County implementation, AT&T Illinois' end users are indirectly affected and  
50 will be directly impacted as other counties in the Counties of Southern Illinois  
51 intergovernmental agreement ("CSI") make the choice to be included under the proposed  
52 plan in the future.

53

54 **Q. ARE YOU PRESENTING ANY EXHIBITS WITH YOUR TESTIMONY?**

55 A. I am sponsoring the following exhibits:

|    |              |  |
|----|--------------|--|
| 56 | Exhibit MN-1 | Diagram of E9-1-1 System Components                      |
| 57 |              |  |
| 58 | Exhibit MN-2 | Glossary of Terms  |
| 59 |              |  |
| 60 | Exhibit MN-3 | Response of Jackson County ETSB to AT&T's First Set of   |
| 61 |              | Data Requests.   |
| 62 |              |  |
| 63 |              | A. InterGovernmental Agreement for Use of Next           |
| 64 |              | Generation 9-1-1 Equipment                               |
| 65 |              |  |
| 66 |              | B. By-Laws of Counties of Southern Illinois              |
| 67 |              |  |
| 68 | Exhibit MN-4 | Response of NG-911 Inc., to AT&T's First Set of Data     |
| 69 |              | Requests.  |
| 70 |              |  |
| 71 |              | A. Frontier/NG-911 Inc., Services Agreement              |
| 72 |              | ( <b>CONFIDENTIAL</b> )                                  |
| 73 |              | B. Frontier/NG-911 Inc., Customer Specific               |
| 74 |              | Arrangement ( <b>CONFIDENTIAL</b> )                      |
| 75 |              | C. CSI/NG-911 Inc. Amended and Restated 9-1-1            |
| 76 |              | System Provider Agreement ( <b>CONFIDENTIAL</b> )        |
| 77 |              |  |
| 78 | Exhibit MN-5 | Response of NG-911 Inc., to Staff Data Requests TEL 1.01 |
| 79 |              | through TEL 1.04.  |
| 80 |              |  |

81 Exhibit MN-6 NENA Document No. 03-508, Version 1, March 15, 2010:  
82 “Impacts of Using a Common Trunk Group to Carry Calls of  
83 Multiple Service Types into a Legacy Selective Router.”  
84

85 **Q. WHAT MATERIALS DID YOU REVIEW?**

86 A. I reviewed the following material: (1) the Petition and the Plan Narrative filed by the  
87 Jackson County Emergency Telephone Services Board; (2) the testimony of Mr. Ramsey  
88 filed on behalf of NG-911 Inc.; (3) the data request responses of Jackson County and NG-  
89 911 Inc.; and (4) the tariff of NG-911 Inc., on file with the Commission. There are  
90 several instances where important information is either unclear or completely lacking.  
91 As a result, there is not sufficient information to properly understand how, and in what  
92 manner, Jackson County and NG-911 Inc., will provision the Next Generation 9-1-1  
93 service. Nonetheless, I use available information to identify areas that I believe will be  
94 problematic for AT&T and other carriers.

95  
96 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

97 A. In Section II, I present an overview of E9-1-1 service in AT&T Illinois’ service areas  
98 today. This will assist the Commission in evaluating Jackson County’s proposal to  
99 replace the current system with a Next Generation 9-1-1 system. In Section III, I raise  
100 specific concerns about Jackson County’s proposal that the Commission should consider.

101

102 **II. BACKGROUND INFORMATION ON ENHANCED 9-1-1**

103 **Q. HOW DO END USERS IN ILLINOIS REACH 9-1-1 TODAY?**

104 A. Today, some form of 9-1-1 Service is made available and is provided to private and  
105 public safety agencies across Illinois, enabling a caller to reach a Public Safety Answer  
106 Point (“PSAP”) or a designated call-answering point by dialing the digits 9-1-1. In  
107 AT&T Illinois’ network, Enhanced 9-1-1 Service (“E9-1-1”) employs the use of a  
108 “Selective Router,” a switching system specially programmed so that a 9-1-1 call can be  
109 routed to a specific PSAP, as designated by the Public Safety Agency responsible for the  
110 area in which the call is made (e.g., a municipality or county), based on the caller’s  
111 telephone number and physical location. It is the Public Safety Agency that (through the  
112 population of routing tables and instructions) determines how 9-1-1 calls should be  
113 routed, and what features will be used. Public Safety Agencies decide whether or not  
114 their PSAPs will receive the Automatic Number Identification (“ANI”, or telephone  
115 number), and Automatic Location Identification (“ALI”, or name and address) with the  
116 9-1-1 call.

117  
118 Some of the components of the current E9-1-1 system (and this is by no means an all-  
119 inclusive list) are End Office-to-Selective Router trunking, E9-1-1 Selective Routing, E9-  
120 1-1 Database Updates, Service Ordering/Provisioning, Back-up PSAPs, and Private  
121 Switch/Automatic Location Identification (“PS/ALI”) Service (including trunking  
122 options and record updates). A diagram depicting most of these E9-1-1 components is  
123 contained in Exhibit MN-1. I have also attached as Exhibit MN-2 a glossary that defines  
124 some of the terms that I am using in my testimony.

125

126 **Q. FROM A NETWORK PERSPECTIVE, HOW DOES THE 9-1-1 CALL REACH**  
127 **THE PSAP?**

128 A. As shown in Exhibit MN-1, starting in the top left-hand corner, the E9-1-1 call begins  
129 when a caller dials 9-1-1. The call is first handled by the caller's serving central office,  
130 which is designated as "END OFC" on the diagram. The central office then sends the  
131 call to the 9-1-1 Selective Router (also known as the Control Office or 9-1-1 Tandem,  
132 and shown as "CONTROL OFFICE" on the diagram), over what are termed End Office-  
133 to-Selective Router trunks. The END OFC shown could depict an AT&T Illinois central  
134 office, a PS/ALI customer private branch exchange ("PBX"), an independent telephone  
135 company end office, a wireless carrier Mobile Switching Center ("MSC"), or a  
136 competitive local exchange carrier end office. The Selective Router queries the Selective  
137 Routing Database (shown as "ALI-M database"), and using the caller's telephone number  
138 (the ANI), determines which PSAP receives the call. These calls are routed to the PSAP  
139 over Router-to-PSAP Circuits. This is E9-1-1 Selective Routing.

140

141 **Q. ARE DATABASES USED IN THE PROVISIONING OF 9-1-1 SERVICE, AND, IF**  
142 **SO, IS IT NECESSARY TO MAKE UPDATES TO THE DATABASES?**

143 A. Yes. E9-1-1 Service Providers require the use of large databases to provision 9-1-1  
144 service, and these 9-1-1 databases are updated frequently. E9-1-1 Database updates  
145 involve changes to caller information for 9-1-1 Service, which is stored in multiple  
146 databases that work together to provide E9-1-1 service. The E9-1-1 database contains the  
147 necessary information, associated with each end-user, to allow E9-1-1 calls to be

148 processed (i.e., telephone number, name, address, and class or type of service). In  
149 general, 9-1-1 Service Providers use two databases for 9-1-1 call processing. The first  
150 database handles service order activity and customer record updates. The second  
151 database provides responses to the Selective Routers to return 9-1-1 call routing data, and  
152 to the PSAPs to provide ALI information when a 9-1-1 call is made. These functions  
153 may be combined into a single database, but the AT&T E9-1-1 Database serving Illinois  
154 uses two separate databases.

155  
156 The AT&T E9-1-1 Database consists of the Transaction Services System (“TSS”, also  
157 known as the Database Management System – “DBMS”), and the Selective  
158 Routing/Automatic Location Identification Manager (“ALI-M”) database. The end-user  
159 data (service order activity for customer moves and for service additions and changes) is  
160 created and updated by each service provider, including AT&T Illinois, CLECs, VoIP  
161 Service Providers, Private Switch/ALI customers, and Incumbent Local Exchange  
162 Carriers. Based on the amount of service order activity, these updates can occur as  
163 infrequently as only when needed (for PS/ALI customers), or as frequently as multiple  
164 times per day (as is the case for AT&T Illinois).

165

166 **Q HOW ARE STREET ADDRESSES MAINTAINED IN THE DATABASES?**

167 A. The TSS contains the Master Street Address Guide (“MSAG”) and a working copy of the  
168 end-users’ records. The MSAG contains street information with address ranges and the  
169 routing information for the responding Public Safety Agencies. The street address ranges  
170 are mapped to the responding PSAPs as identified by each 9-1-1 system’s 9-1-1

171 Coordinator(s), via the use of Emergency Service Numbers (“ESNs”). ESNs define the  
172 responding agencies for law enforcement, fire and emergency medical services. This  
173 information is provided to AT&T Illinois by the county or municipal 9-1-1  
174 Coordinator(s), and is directly input to this database. The responsibility for the overall  
175 accuracy of the MSAG lies with the county or municipal 9-1-1 Coordinator(s).

176 The MSAG portion of the TSS database is used to validate service update records, which  
177 include the customer name, address, and telephone number, obtained from AT&T Illinois  
178 or another carrier via electronic file transfer (or other method). As the records are passed  
179 to the TSS, an inquiry is made to validate each address against the MSAG. If the inquiry  
180 shows that an individual record matches a valid address within the MSAG, then a record  
181 is produced to dynamically update the ALI-M database. This record, which contains  
182 updated end-user information, will also have routing information added to it. The record  
183 is updated within the ALI-M database in a near real-time processing environment. If the  
184 record does not contain a valid address (or address range), then an entry to an Error File  
185 is made; there is an error file produced for each file of 9-1-1 database updates submitted.

186

187 This edit check is vital, because it ensures that each address passed is a valid address  
188 recognized by the county or municipality. If the county or municipality does not  
189 recognize the address, the 9-1-1 system does not know how to assign the routing for that  
190 call; i.e., the call will not get assigned (for selective routing purposes) to the proper PSAP  
191 as defined by the county or municipality. Errors may also be sent to PSAPs or counties  
192 for resolution when necessary. AT&T Illinois returns statistics for each electronic file  
193 submitted by a service provider, including the number of records received and processed

194 correctly, a count of those records received with errors, and the actual error records. This  
195 allows the service provider to correct the records for re-submission in a subsequent  
196 service order file. The service order activity files are processed in sequential order, so  
197 that older service order activity does not over-write or modify more current customer  
198 activity.

199

200 **Q. ARE THERE OTHER FUNCTIONS PERFORMED BY THE TSS?**

201 A. Yes. In addition to the MSAG validation discussed above, the TSS performs a number of  
202 other edit checks on the end-user record updates presented to help ensure that the  
203 databases remain accurate and complete. These edit checks include determining whether  
204 the type of update submitted (insert, delete, change) is consistent with what is in the  
205 database (e.g., if the update type is an insert, no existing record would be found in the  
206 database). The TSS also does edit checks on pilot/member number relationships. A pilot  
207 number is the main number of a Centrex or PBX system; member numbers are the other  
208 telephone numbers associated with the Centrex or PBX system. TSS performs edit  
209 checks to ensure the pilot number is in the database before members can be added.

210

211 **Q. BY WAY OF FURTHER EXAMPLE, HOW DOES AT&T ILLINOIS MAINTAIN**  
212 **THE TSS?**

213 A. The TSS is maintained for the AT&T Midwest region as a whole. The TSS produces the  
214 ALI-M databases used by the 9-1-1 Selective Routers for the routing of 9-1-1 calls, and  
215 used by the PSAPs to obtain the ALI records associated with the phone numbers of the 9-  
216 1-1 callers.

217

218 The ALI-M system contains the selective routing information for each active telephone  
219 number in service by an end-user served by an AT&T Midwest 9-1-1 Selective Router.  
220 Using criteria specified by the 9-1-1 Coordinator(s) in the MSAG, the TSS assigns the  
221 emergency service number and creates a record file and updates the SR database stored in  
222 the separate ALI-M processors which store the ALI records. TSS correlates the SR  
223 database files to assure each 9-1-1 “Selective Router” switch contains all of the telephone  
224 numbers working in the exchanges connected to that 9-1-1 Control Office. In Illinois, a  
225 mated pair of ALI-M processors controls selective routing.

226

227 The ALI portion of the database also contains a record for each active telephone number  
228 in service. TSS creates each ALI record by combining information from two sources:  
229 specific information about each end-user that is downloaded and maintained by each  
230 service provider in the ALI-M system; and information from MSAG that is maintained  
231 by the Public Safety Agency.

232

233 **III. AREAS OF CONCERN WITH THE JACKSON COUNTY PROPOSAL**

234

235 **Q. DO YOU HAVE QUESTIONS OR CONCERNS ABOUT THE WAY IN WHICH**  
236 **JACKSON COUNTY AND NG-911 INC., INTEND TO PROVISION NEXT**  
237 **GENERATION 911 SERVICE?**

238 A. Yes. My concerns involve the following matters:

239

- Interconnection Arrangements for 9-1-1 traffic

240

241

- Aggregated/Dedicated Transport of 9-1-1 Traffic to the PSAP

- 242
- 243           • Split Exchanges
- 244
- 245           • 9-1-1 Databases
- 246

247           **A.     INTERCONNECTION ARRANGEMENTS BETWEEN CARRIERS AND THE 9-1-1**  
248           **SYSTEM SERVICE PROVIDER**  
249

250   **Q.     UNDER JACKSON COUNTY’S PLAN NARRATIVE, PLEASE EXPLAIN THE**  
251   **METHODS OF INTERCONNECTION AS YOU UNDERSTAND THEM.**

252   A.     This is a difficult question to answer, as the materials submitted in this docket fail to  
253   provide sufficient detail for a full analysis of the methods of interconnection.  There  
254   appear to be two options for a carrier to interconnect to the 9-1-1 system.  The first  
255   option would be for carriers to use the Frontier Aggregation Service (“FAS”), which I  
256   understand would allow existing carriers with existing E9-1-1 connections with Frontier  
257   to keep those arrangements in place, at no charge.  In other words, carriers would  
258   continue to use their existing route and processes through the Frontier Selective Router.  
259   I base this in part on the response of Jackson County to AT&T Data Request 4, in which  
260   Jackson County states that under the Frontier Aggregation Service “there is no change to  
261   legacy access signaling or transport facilities.”  The data request responses received from  
262   Jackson County and NG-911 Inc., are attached to my testimony as Exhibits MN-3, MN-4  
263   and MN-5.

264

265   The second option allows carriers to establish a direct connection to NG-911 Inc.’s  
266   Emergency Services IP Network (referred to as an “ESInet”).

267

268 **Q. PLEASE DESCRIBE THE FRONTIER AGGREGATION SERVICE.**

269 A. Under this option, as described in the Plan Narrative, there would be some type of  
270 aggregation equipment installed by Frontier in the same office where carriers currently  
271 terminate their facilities to access Frontier's selective router. Per the Plan Narrative at 9:

272 "Access traffic will be delivered for Jackson County through what has been called  
273 the Frontier Aggregation Service (FAS). NG-911, Inc. has contracted with  
274 Frontier to aggregate Access Carrier traffic from Frontier and other access Carrier  
275 offices and deliver it to the NG-911, Inc. Data Centers in Murphysboro and  
276 Harrisburg."

277  
278 There are many aspects of this arrangement or service that remain unclear to me. Below  
279 are several questions that need to be further addressed by Jackson County and/or NG-911  
280 Inc., to provide AT&T a better understanding of how their next generation 9-1-1 service  
281 would be provisioned:

- 282 • How does a carrier order or arrange to use the FAS service?
- 283 • What ordering system is used?
- 284 • Are there any costs to carriers?
- 285 • How long will the FAS arrangement be available to AT&T?
- 286 • Will the FAS impose new costs on Jackson County?
- 287 • Does Jackson County intend to recover those costs in a way that would  
288 impact AT&T?
- 289 • Does Frontier monitor the FAS service as a System Service Provider, a  
290 transport provider or as a 9-1-1 aggregator?
- 291 • Is AT&T's use of this arrangement governed by any contract or tariff,  
292 with either Frontier or NG-911 Inc.? If so, where is that document?

293

294 **Q. PLEASE DESCRIBE THE DIRECT CONNECTION TO NG 9-1-1 INC.'S**  
295 **EMERGENCY SERVICES IP NETWORK.**

296 A. Under this option, and as described in the Plan Narrative and testimony, carriers can  
297 order trunks that terminate in the Legacy Network Gateway ("LNG") at the two data  
298 centers. The LNG performs a protocol conversion from the Time Division Multiplexing

299 (“TDM”) format used in the PSTN to Internet Protocol (“IP”) used by the ESInet. There  
300 is not much information regarding how to go about ordering this service, except for the  
301 definition of the LNG and the diagram that shows the LNG as part of the Data Center.  
302 Most of the questions I list above are applicable to this scenario.

303

304 **Q. IF AT&T WANTED TO DIRECTLY CONNECT TO THE ESINET, HOW**  
305 **WOULD IT ORDER 9-1-1 TRUNKS?**

306 A. First, it is not clear to me whether a carrier would order 9-1-1 trunks from NG-911 Inc.,  
307 Clearwave, or someone else. In any case, today in the industry, carriers order trunks and  
308 facilities from each other using the EXACT system and issue an Access Service Request  
309 (“ASR”) order. There is a standard format that all carriers have agreed upon, which has  
310 worked well for many years. It is unclear, however, whether NG-911 Inc., and  
311 Clearwave will use the EXACT system to process orders. If they do not, there could be  
312 quality control issues if a non-industry-standard system is used. Additionally, record  
313 keeping of these critical 9-1-1 circuits would be extremely difficult to manage. It has  
314 been my experience that after ordering requests are made they must later be verified for  
315 correctness. Tracking orders would be difficult with a non-standard system.

316

317 **Q. HOW DOES AT&T CURRENTLY SEND E9-1-1 TRAFFIC TO THE JACKSON**  
318 **COUNTY PSAPS?**

319 A. AT&T Illinois and AT&T Mobility have established trunk groups to the Frontier  
320 Selective Router (“SR”), where the calls are then routed to the appropriate PSAP in

321 Jackson County. And it should be noted again that while there are no AT&T Illinois  
322 landline end users immediately impacted by the Jackson County implementation, future  
323 implementations by Counties of Southern Illinois members will impact the 9-1-1 service  
324 for AT&T's landline end users.

325

326 **Q. UPON IMPLEMENTATION OF NG-911 INC.'S SERVICE IN JACKSON**  
327 **COUNTY, ARE THERE ANY CHANGES FOR AT&T?**

328 A. This is a critical question, and I simply do not know the answer. The main reason that  
329 AT&T is participating in this proceeding is to hear from all relevant players, including  
330 Jackson County ETSB, NG-911 Inc., and Frontier, whether anything changes for either  
331 AT&T Illinois or AT&T Mobility. I think the answer is that it does not – meaning that  
332 there are no changes in the way that AT&T Illinois and AT&T Mobility send E9-1-1  
333 traffic to the Jackson County ETSB and there are no new charges that any player is  
334 attempting to impose on AT&T Illinois and AT&T Mobility. But we need to hear that  
335 affirmative statement from Jackson County ETSB, NG-911 Inc., and Frontier.

336

337 **Q. DOES IT APPEAR THAT FRONTIER WILL CONTINUE IN ITS ROLE AS A**  
338 **9-1-1 SYSTEM SERVICE PROVIDER?**

339 A. It appears that way to me. In legacy 9-1-1 systems, a designated central office switch  
340 contains special software that performs the Selective Routing functions. This software  
341 allows 9-1-1 calls to query a Selective Routing database to determine the appropriate  
342 destination for the 9-1-1 call. Software in the Selective Router also allows that switch to

343 perform default routing; for example, an ANI (Automatic Number Identification) failure  
344 may require a 9-1-1 call to be routed to the Sheriff's office instead of the normal PSAP.  
345 Regarding the proposed plan, Mr. Ramsey states in his testimony (at lines 110-112) that  
346 Frontier will continue to perform the Selective Routing function for part of the 9-1-1 calls  
347 it receives, i.e., 9-1-1 calls from split exchanges: "They [Frontier] will actually be doing  
348 network routing to the aggregation point and NG-911, Inc. will do the selective routing of  
349 the traffic to the PSAP's. The FAS will handle calls from split exchanges and opted-out  
350 exchanges...."

351  
352 It's an open question whether Frontier is getting paid for performing the Selective Router  
353 function. Exhibit 6 of the Plan Narrative states that, "[T]he Jackson County ETSB will  
354 no longer pay Frontier fees related to 911 for Selective Routing, database and network  
355 and will now pay the new provider, NG-911, Inc." I am unclear how Frontier's switch  
356 will only use the Selective Router software functionality when a split wire center is  
357 involved. It appears from a review of the Plan Narrative and testimony that Frontier is  
358 performing a Selective Router function for all 9-1-1 calls, not just calls from split  
359 exchanges. It would be helpful if NG-911 Inc., provided further clarification on this  
360 point.

361

362 **B. TRANSPORT OF 9-1-1 TRAFFIC TO THE JACKSON COUNTY PSAPs**

363 **1. Aggregation of 9-1-1 Traffic**

364 **Q. WHAT IS AGGREGATION OF E9-1-1 TRAFFIC?**

365 A. Aggregation occurs when E9-1-1 calls from different carriers are placed on the same  
366 transport facilities going to the Selective Router and going from the Selective Router to  
367 the PSAP. Dedicated transport, on the other hand, occurs when E9-1-1 traffic from each  
368 carrier is placed on separate (i.e., dedicated) transport facilities. As I discuss in Section  
369 III.B.2, below, dedicated transport is required by Commission rule.

370

371 **Q. DOES THE JACKSON COUNTY PLAN MODIFICATION RELY ON**

372 **AGGREGATION OF E9-1-1 TRAFFIC?**

373 A. Yes. According to the Plan Narrative (at 15), Frontier will be “adding hardware to  
374 aggregate, route and deliver calls to NG-911, Inc.”

375

376 **Q. ARE THERE POTENTIAL DOWNSIDES TO AGGREGATION?**

377 A. Yes. If E9-1-1 traffic from different carriers is combined on a single trunk group and  
378 transport facility, there could be network integrity issues including, in part, a denial of  
379 service attack on a PSAP. A denial of service attack can be a result of a high rate of calls  
380 being directed toward a given PSAP to the point where the PSAP cannot handle true  
381 emergency calls. The denial of service event can be initiated through an autodialer or  
382 other device. Normally, without aggregation, the 9-1-1 service provider can identify  
383 which originating carrier’s trunk group is causing the problem and isolate that from the  
384 PSAP. Other calls can then continue to process into the PSAP normally. When the

385 9-1-1 calls of many carriers are funneled into one intermediate system, the 9-1-1 service  
386 provider does not have the ability to screen the offending trunk group from the PSAP.  
387 Even if the service provider coordinates with the aggregator to identify the offending  
388 trunk group, placing a common trunk group out of service will affect more customers  
389 than if the problem was limited to a single trunk group.

390

391 **Q. SHOULD WIRELINE AND WIRELESS TRAFFIC BE DELIVERED OVER**  
392 **SEPARATE TRUNKS?**

393 A. Even if E9-1-1 traffic from different carriers is aggregated, wireline and wireless E9-1-1  
394 traffic should remain on separate transport facilities. According to NENA's technical  
395 information document entitled Impacts of Using a Common Trunk Group to Carry Calls  
396 of Multiple Service Types into a Legacy Selective Router, "[s]ystems commonly referred  
397 to as 'legacy' 9-1-1 deliver calls to traditional E9-1-1 selective routing switches over a  
398 dedicated network using trunks unique to each originating provider or service type. If  
399 one or more of these originating services is combined with another and placed onto a  
400 common trunk group into the E9-1-1 Selective Router, there could be consequences that  
401 could impact routing, default routing, and congestion control." Exhibit MN-6 at 5. In  
402 order to accommodate the accurate handling of calls, AT&T strongly supports separate  
403 trunk groups for wireless and wireline traffic. If the E9-1-1 aggregator does not take the  
404 appropriate precautions to separate wireline and wireless traffic over separate trunks,  
405 there could be service issues. With E9-1-1 emergency traffic, great care must be taken to  
406 route traffic to the correct PSAP, especially under default routing conditions. This is

407 even more of a consideration where new technology and new E9-1-1 service providers  
408 are involved.

409 **2. ICC Rule 725.410 Requires “Dedicated, Redundant Facilities”**

410 **Q. WHAT DO THE ICC RULES SAY ABOUT TRANSPORT FOR 911 TRAFFIC?**

411 A. Rule 725.410(b) requires “dedicated redundant facilities” for all incoming 9-1-1 facilities.

412 The wording of the rule is as follows:

413 Dedicated redundant facilities should be considered to be the standard method of  
414 providing all incoming 9-1-1 facilities and, when possible, employ diverse  
415 routing. 9-1-1 circuits and facilities shall be sufficient to complete 99% of all  
416 requests for emergency services during the average busy hour of the average busy  
417 day. In all cases, the 9-1-1 network shall be provisioned to handle a minimum of  
418 two circuits and/or simultaneous calls, and shall use dedicated, diverse and/or  
419 redundant equipment, when available, in order to increase the survivability of the  
420 9-1-1 network. Additionally, the Commission 9-1-1 Program Staff and/or 9-1-1  
421 authority may, on an annual basis or in the event of a problem, request traffic  
422 studies or other documentation to verify that the standard is being met.

423  
424 Rule 725.405(i)(11) has the same requirement.  
425

426 **Q. WHAT IS YOUR UNDERSTANDING OF THE REQUIREMENT FOR**  
427 **“DEDICATED” FACILITIES?**

428 A. I understand that to mean that telecommunications carriers that transport 9-1-1 calls to a  
429 PSAP have to do so on transport facilities that are used only to transport 9-1-1 calls and  
430 only for a single carrier’s 9-1-1 traffic. In other words, each carrier has to have a  
431 dedicated transport facility for its 9-1-1 traffic to a particular PSAP and may not mix its  
432 9-1-1 traffic with 9-1-1 traffic from other carriers.

433  
434 **Q. IS THAT HOW AT&T ILLINOIS HANDLES ITS 9-1-1 TRAFFIC?**

435 A. Yes.

436

437 **Q. ISN'T JACKSON COUNTY'S PLAN IS BASED ON THE USE OF**  
438 **AGGREGATED (AS OPPOSED TO DEDICATED) TRANSPORT?**

439 A. That's right. The Plan permits carriers to establish dedicated transport arrangements to  
440 the NG-911 Inc., data centers, but it appears that most 9-1-1 traffic will be handled over  
441 the FAS service, which uses aggregated transport.

442

443 **Q. DOES THIS CREATE A PROBLEM UNDER THE ICC'S RULE?**

444 A. It looks like it to me, but that is really a question for the lawyers.

445

446 **Q. HAS ANYONE REQUESTED FORBEARANCE FROM COMMISSION RULES**  
447 **IN THIS PROCEEDING?**

448 A. Not to my knowledge. Section 10 of the Emergency Telephone System Act sets out  
449 requirements for forbearance from Commission rules. 50 ILSC 750/10. I am not aware  
450 that Jackson County ETSB, NG-911, Inc., or Frontier has made such a request.

451

452 **C. SPLIT EXCHANGES**

453 **Q. DO YOU HAVE ANY CONCERNS REGARDING THE INFORMATION**  
454 **PROVIDED ON HOW NG-911 INC., WOULD HANDLE SPLIT EXCHANGES?**

455 A. Yes, and first, let me explain what I mean by a split exchange. A local exchange carrier's  
456 exchange may be partially located in two separate counties or municipalities that are  
457 served by two separate PSAPs or by two entirely different 9-1-1 systems offered by two  
458 different 9-1-1 service providers. Hence, for 9-1-1 purposes, these are "split exchanges."

459

460 Exchange boundaries rarely follow geographic or county boundaries, and the splitting of  
461 exchanges among E9-1-1 systems is a fairly common occurrence. In some instances, the  
462 E9-1-1 Service Providers serving these split exchanges are not the same, and special  
463 routing and network design is required to ensure end users in these adjacent counties have  
464 their 9-1-1 calls routed to the correct 9-1-1 Service Provider.

465

466 **Q. CAN YOU DESCRIBE HOW NG-911 INC., WILL HANDLE SPLIT**  
467 **EXCHANGES?**

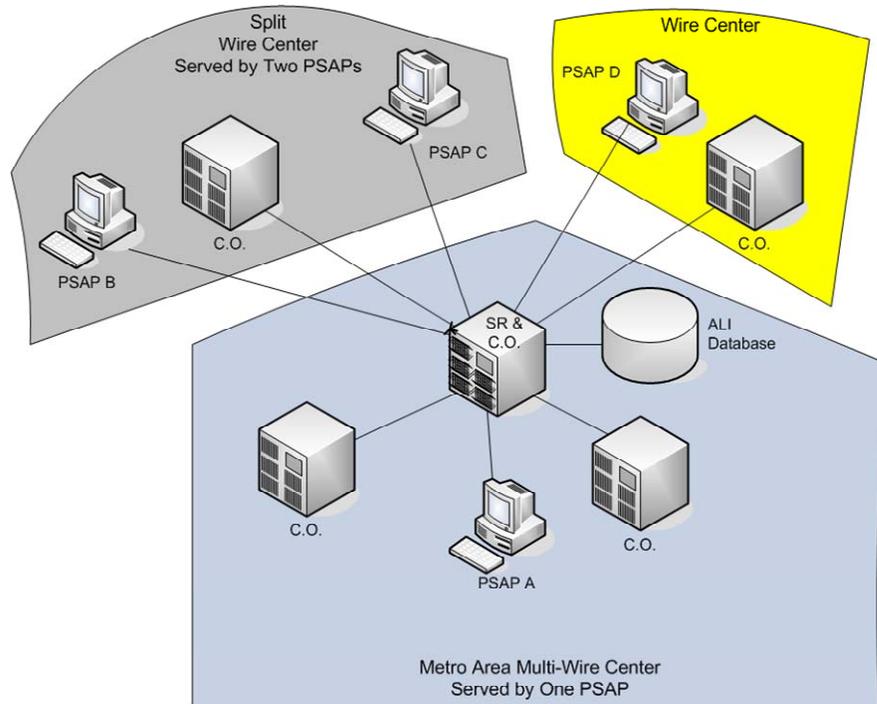
468 A. It is clear that there are several split exchanges in Jackson County – they are listed  
469 on pages 16 and 17 of the Plan Narrative. Based upon the information provided, I cannot  
470 explain in any detail how split exchanges will be handled. There is very little in the  
471 testimony of Mr. Ramsey regarding this subject, which is a concern given how often  
472 9-1-1 calls are routed in split wire centers. In addition, the description in the Plan  
473 Narrative is confusing and appears to be inconsistent with normal operating procedures,  
474 particularly the statement on page 16 which says, “In some cases, Jackson County opted  
475 out of serving split exchanges which means those exchanges will not have 9-1-1 calls  
476 delivered to Jackson County from the FAS solution for completion.”

477

478 **Q. HOW IS THE ROUTING OF 9-1-1 CALLS HANDLED IN SPLIT EXCHANGES**  
479 **IN AT&T ILLINOIS’ SERVICE AREA?**

480 A. By way of background, AT&T Illinois has long used a Primary/Secondary Selective  
481 Router system to route 9-1-1 calls in split exchanges (also called “wire centers”) and

482 proposes to continue using that well-established system with NG-911. Below is a  
483 diagram that depicts the scenario.



484  
485  
486 A 9-1-1 call in a split exchange is routed to a designated “Primary” Selective Router,  
487 which then either routes the call directly to a PSAP served by that router or, if necessary,  
488 sends the call to the “Secondary” Selective Router (the one owned by the other carrier  
489 serving a PSAP for that wire center), which then sends the call to the correct PSAP  
490 served by that router. The determination of which carrier’s selective router is Primary  
491 and which is Secondary is based on which router serves PSAPs that serve the clear  
492 majority of access lines in the exchange. This is the most logical and most efficient  
493 method for routing 9-1-1 calls in split exchanges and is the method that carriers in the  
494 industry continue to use today. This is how AT&T Illinois deals with exchanges that are  
495 split between its PSAP customers and PSAP customers of an adjacent ILEC.

496

497 **Q. IS THIS METHOD RELIABLE?**

498 A. Yes, it is extremely reliable and time-tested. The same ALI database is used to route  
499 calls at the Primary Selective Router as is used to provide the PSAP with the end-user's  
500 location. This is a centralized database that is as accurate as any database can be and is  
501 tested on an ongoing basis.

502

503 **Q. DOES THIS CONCEPT OF PRIMARY AND SECONDARY SELECTIVE**  
504 **ROUTERS CONTINUE TO APPLY IN THE NEXT GENERATION 9-1-1 PLAN**  
505 **PROPOSED BY JACKSON COUNTY?**

506 A. It should, but I do not see any discussion of that in the Plan Narrative. It would be  
507 helpful to get clarification from Jackson County and NG-911, Inc., on this point.

508

509 **D. 9-1-1 DATABASE FUNCTIONALITY**

510 **Q. PLEASE EXPLAIN YOUR CONCERNS ABOUT THE INFORMATION**  
511 **PROVIDED ON THE PROVISIONING OF PRIVATE SWITCH/AUTOMATIC**  
512 **LOCATION IDENTIFICATION SERVICE.**

513 A. An important element of 9-1-1 Service is Private Switch/Automatic Location  
514 Identification ("PS/ALI") Service, a mandate of the Illinois legislature under Section 15.6  
515 of the Emergency Telephone System Act (50 ILCS 750/15.6) with rules adopted by the  
516 Illinois Commerce Commission (83 Ill. Adm. Code § 726). Many private switch (i.e.,  
517 Private Branch Exchange – PBX, or CENTREX) operators in the state of Illinois must  
518 implement this service, as the means of providing station-level automatic location

519 information (“ALI”) for their users to the 9-1-1 databases of the 9-1-1 Service Providers.  
520 The private switch operators, or their agents, based upon criteria written into state law,  
521 must administer this station-level information. All 9-1-1 Service Providers in Illinois  
522 currently offer PS/ALI Service to customers, with the provider determined by which  
523 9-1-1 Service Provider serves the ETSB and its PSAPs.

524  
525 With PS/ALI Service, a private switch operator typically establishes at least two CAMA  
526 trunks to the Selective Router of the 9-1-1 Service Provider for its county or  
527 municipality. Many PS/ALI customers now use an ISDN Primary Rate Interface link  
528 from the private switch to the local End Office, eliminating the need for dedicated  
529 CAMA trunks to the 9-1-1 Selective Router. The private switch sends any 9-1-1 calls  
530 made by its station users to the Selective Router over these network configurations.

531 PS/ALI Service also includes a mechanized means for the private switch operator to  
532 submit updates of its station-level ALI records to the 9-1-1 Service Provider’s database.  
533 With these issues in mind, I reviewed the Plan Narrative on PS/ALI Service.

534  
535 I found only one reference to PS/ALI – it was on page 13 of the Plan Narrative and states  
536 that “[t]here are no direct connected PS/ALI customers at the time of filing, but if there  
537 are direct connected PS/ALI customers, updates will be sent via the same FTP site as  
538 direct connect carriers.” The Plan Narrative does not address questions regarding how  
539 update records will be submitted, what format the records will be submitted in, or how  
540 they will be validated against an MSAG or GIS-based database system for accuracy. Nor

541 does it explain whether and how NG-911 Inc. will offer new PS/ALI agreements with  
542 private switch operators in Jackson County that directly connect to the ESInet.

543  
544 Additionally, NG-911 Inc., fails to demonstrate that it has, or will have, the proper  
545 mechanisms in place for receiving and processing station-level record updates, or for  
546 negotiating agreements for trunks needed by the private switch operators to link their  
547 private switches to the next generation 9-1-1 system. NG-911 will also be responsible for  
548 working with third-party PS/ALI firms that centrally manage PS/ALI updates for certain  
549 private switch operators. In general, there is quite a bit of operational detail on this topic  
550 that is unexplained.

551  
552 **Q. HOW DOES NG-911 INC., PROPOSE TO OBTAIN DATABASE INFORMATION**  
553 **THAT IS CRITICAL FOR PROPER ROUTING OF EMERGENCY CALLS?**

554 A. The Plan Narrative says (at 8) that NG-911 Inc., will “coordinate with the Access  
555 Providers to receive updates and maintain the database(s).” I assume that NG-911 Inc. is  
556 referring to information about the name, location and telephone number of each end user.  
557 As I explain in Section II above, AT&T Illinois has well-established procedures in place  
558 to gather and update this information as customers sign up for (and cancel) service.  
559 Based on the sparse information provided in the Plan Narrative, it is difficult to conclude  
560 that NG-911 Inc., has sufficient procedures in place to carry out this function. For  
561 example, there is no explanation of the software that will be used to exchange  
562 information, what connections will be established with carriers to transfer the data, who  
563 will perform the work, and whether there will be any charges for this data transfer. Here

564 again, there are insufficient details to allow AT&T to know how this is supposed to work  
565 – and whether it will work.

566

567 **Q. DOESN'T THE COMMISSION HAVE FAIRLY RIGOROUS TESTING**  
568 **REQUIREMENTS IN SECTION 725.500 OF ITS RULES?**

569 A. It does, and I would expect that will be a good test of whether NG-911 Inc.'s system  
570 operates as advertised under ideal conditions. But it may not be a good test of whether  
571 the system will operate under stress, or whether the system's databases will be accurately  
572 and promptly updated.

573

574 **E. OTHER AREAS OF CONCERN**

575 **Q. THE TESTIMONY OF MR. RAMSEY AND THE PLAN NARRATIVE PROVIDE**  
576 **NO DETAIL REGARDING THE COST OF NG-911 INC.'S SERVICE. DOES**  
577 **THIS CREATE ANY CONCERNS?**

578 A. Yes. There is nothing in the Petition, Plan Narrative or Mr. Ramsey's testimony  
579 addressing the costs of direct trunking, database entries and downloads, transport  
580 facilities or the FAS. Further, it is unclear how cost recovery will work under NG-911  
581 Inc.'s plan. Carriers and the Commission need this information prior to NG-911 Inc.'s  
582 implementation of its 9-1-1 service. Additionally, there seems to be a common thread  
583 throughout the Plan Narrative and Mr. Ramsey's testimony that NG-911 Inc., *will* adopt  
584 certain practices, but the practices don't seem to exist at this time. For example, item 16  
585 in Mr. Ramsey's testimony (at 12) says NG-911 Inc., *will* adopt practices to minimize the  
586 possibility of service disruption. Likewise, item 21 in Mr. Ramsey's testimony (at 13)

587 says NG-911 Inc., will adopt practices and implement procedures to reduce or minimize  
588 the conditions that cause default routed calls. From both a network integrity and business  
589 perspective, it is important to know with specificity what these practices are before this  
590 critical service is up and running.

591

592 **Q. DOES THIS NETWORK APPEAR TO BE AN INTEGRATED SYSTEM?**

593 A. No. NG-911 Inc.'s next generation 9-1-1 network appears to be a collection of different  
594 piece parts, with multiple contractor/subcontractor relationships. Given the lack of  
595 specificity, it is unclear how these piece parts and multiple entities will handle emergency  
596 services calls during man-made and natural disasters. While it is possible to create call-  
597 out procedures for technicians, it can become unmanageable when multiple organizations  
598 are involved, particularly during a crisis scenario. I simply raise this point because the  
599 Plan Narrative is missing detail on a number of critical points, including in part,  
600 interconnection, aggregation, database updates, split exchanges, disaster recovery and  
601 any costs proposed to be recovered from AT&T.

602

603 **IV. CONCLUSION**

604 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

605 A. Yes.

**STATE OF ILLINOIS  
ILLINOIS COMMERCE COMMISSION**

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**Petition to Modify 911 Provider for Jackson     )**  
**County Emergency Telephone System            )**     **Docket No. 13-0669**  
**Board, Jackson County, Illinois                )**

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**CERTIFICATE OF SERVICE**

I, Mark R. Ortlieb, an attorney, certify that a copy of the foregoing **DIRECT TESTIMONY OF MARK NEINAST** was served on the following parties by U.S. Mail and/or electronic transmission on February 21, 2014.

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Mark R. Ortlieb

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