State of New Jersey
DEPARTMENT OF LAW AND PUBLIC SAFETY
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January 9, 1995

Mr. William F. Canton
Acting Secretary
Federal Communications Commission
1919 M. Street, N.W., Room 222
Washington, D.C. 20554

DOCKET FILE COPY ORIGINAL

Re: Public Comments on Proposed Rule Making
CC Docket No.: 94-102

Dear Mr. Canton:

Please be advised that 10 copies of Public Comments to Proposed Rule Making on behalf of the State Of New Jersey were filed with your office yesterday in accordance with the January 9 deadline. However, the papers filed yesterday were copies of a telefax and therefore are more difficult to read.

For your convenience, I have enclosed an original and 9 copies of the identical Public Comment to be substituted for those filed yesterday so that the Commissioners will not be inconvenienced when reading the State of New Jersey submission.

Thank you.

Very truly yours,

George N. Rover
Deputy Attorney General
OAG/Legal Affairs

GNR:rma
Enclosures

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Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)
	) CC Docket No. 94-102
Revision of the Commission's rules	)
to ensure compatibility with	) RM-8143
enhanced 911 emergency calling systems	)

To: The Federal Communications Commission

PUBLIC COMMENTS ON PROPOSED RULE MAKING

Comments Submitted by

OFFICE OF EMERGENCY TELECOMMUNICATIONS SERVICES
DIVISION OF STATE POLICE
DEPARTMENT OF LAW AND PUBLIC SAFETY
STATE OF NEW JERSEY

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I. SUMMARY

1. Lack of 9-1-1 enhanced features from wireless devices and Private Branch Exchanges (PBXs) have created a significant service gap in the provision of emergency services to the public and immediate action must be taken to remedy this problem. As noted in the Commission's Notice of Proposed Rule Making in this proceeding ("FCC Notice"), the number of 9-1-1 calls from wireless devices are dramatically increasing (See FCC Notice, para. 9.). If actions are not taken to provide enhanced 9-1-1 features from PBXs and wireless devices, the huge investment made by New Jersey and other jurisdictions in designing and implementing an enhanced 9-1-1 network will be largely wasted.

2. The State of New Jersey enthusiastically supports the Commission's efforts to propose technical performance requirements that ensure the compatibility of commercial mobile radio services (CMRS) and PBXs with enhanced 9-1-1 emergency services. The public safety, health and welfare of the nation require that these issues be addressed immediately. It is critical that the Commission be directly involved in the setting of standards to ensure that wireless devices and PBXs and other dispersed private telephone systems operate effectively with enhanced 9-1-1 systems.

II. BACKGROUND

3. Prior to the implementation of enhanced 9-1-1 in New Jersey, each of the 567 municipalities in New Jersey had unique emergency numbers. In many instances, people in need of emergency services did not know the correct emergency number to dial for help. Additionally, 7-digit emergency telephone numbers could not be dialed from pay phones without coins. These two factors contributed to persons dialing

telephone operators for emergency assistance approximately 3,500 times each day in New Jersey which resulted in significant delays in the dispatching of emergency public safety services.

4. In January 1986, New Jersey created the Emergency Response System Study Commission ("Study Commission"). The purpose of the study commission was to evaluate the emergency response systems in our State and make recommendations on how to improve these systems. One of the major issues addressed by the Study Commission was whether the State should design and implement an enhanced 9-1-1 emergency telephone reporting system. In its "First Phase Report", released on December 13, 1986, the Study Commission recommended the enactment of legislation to create a Statewide enhanced 9-1-1 network.

5. Consistent with the Study Commission's recommendation , on January 18, 1989, the New Jersey 9-1-1 Act ("Act") was passed into law (see N.J.S.A. 52:17c et seq.). The stature required the implementation of a statewide, 9-1-1 enhanced emergency telephone system within three years. The Act required that all municipalities participate in the network either individually or as part of a regional system. In recognition of the importance of an enhanced 9-1-1 system, the State committed itself to fund the majority of the costs associated with the building of the system. The statute also gave the Attorney General broad enforcement powers to ensure that all governmental units fulfilled their particular network obligations.

6. Traditional enhanced 9-1-1 systems did not meet the dependability criteria established by the New Jersey Office of Emergency Telecommunications Services ("OETS") and the New Jersey 9-1-1 Commission. Single points of failure, diverse circuit

routing and adequate backup facilities were major concerns which OETS addressed. Additionally, the system would be statewide and would span three area codes, involving three different telephone companies. A centralized approach which could support both large regional Public Safety Answering Points (PSAPs) as well as local PSAPs was developed by Bell Atlantic with the approval of OETS and the New Jersey 9-1-1 Commission. This system utilizes three dedicated specialized 9-1-1 tandem switches in a seamless design with diverse circuits and instantaneous network backup devices at each local telephone exchange. This multi-switch seamless 9-1-1 system provides the dependability required by OETS.

7. This design was utilized for several reasons. First, the switches have internodal capability which allows for inter tandem transfers between tandems via primary and secondary T-3 circuits. Second, through external digital cross-connect switches, the New Jersey system can perform without compromise in the event one of the three switches fail. Through external digital cross-connect switches, the system will continue to function in the normal mode and pass 9-1-1 calls to the appropriate PSAP. Third, the system was dedicated to 9-1-1 which would isolate the 9-1-1 system from failures which have sometimes occurred when the shared public switched telephone network (PSTN) access tandem and related network is shared as a 9-1-1 tandem.

8. Finally, the specialized 9-1-1 tandem supported both conventional PSAP and relatively inexpensive but highly efficient integrated PSAP (IPSAP) equipment that did not require expensive data circuits. With IPSAP equipment, the tandem transmits Automatic Number Identification (ANI) and Automatic Location Information (ALI) at 4.8 kb/s over the same analog circuit as the call (known as data before voice) within the first

half second before the call is put through. Additionally, IPSAP terminals can handle multiply calls from a single terminal since calls can be held at the tandem rather than at the PSAP. This reduces the amount of voice trunks needed to each PSAP.

9. The New Jersey 9-1-1 enhanced statewide network was built at a network cost of $ 94,565,000 borne by the State and an estimated $ 10,507,000 borne by the local municipalities of New Jersey for PSAP equipment for a total cost of $ 105,072,000. These costs include network maintenance, database maintenance, and all dedicated 9-1-1 trunks through the year 2005. The New Jersey 9-1-1 system is the only multi-switch seamless 9-1-1 network in the nation and addresses all of the concerns enumerated in the FCC's "Network Reliability Council's Report".

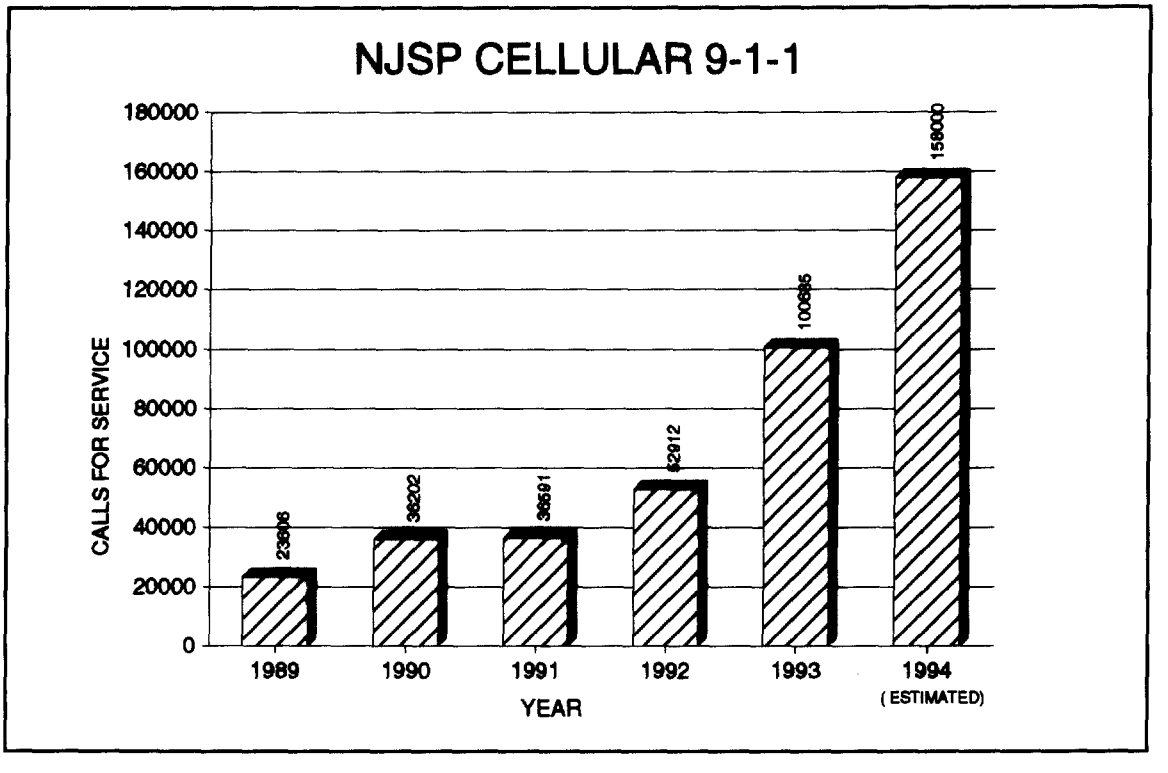
10. The New Jersey system also includes the only statewide mandatory interconnect of wireless local exchange carriers by individual cell sites as recommended by the FCC Notice in this proceeding (See, FCC Notice, para. 49.). Additionally, the New Jersey system is the only statewide system that has tested selective routing of wireless calls based on real-time coordinate based (latitude/longitude) routing.

III. GENERAL COMMENTS

11. Lack of 9-1-1 enhanced features from wireless devices have created a significant service gap in the provision of emergency services to the public. The State of New Jersey agrees with the comment in the FCC Notice that users of wireless devices are receiving "inferior 9-1-1 services (See, FCC Notice, para. 10.)." This situation not only has a negative impact on those in need of emergency services, but it will also put a severe financial strain on the providers of 9-1-1 services. As wireless 9-1-1 calls make up a larger percentage of all 9-1-1 calls placed, call length times are increasing due to

lack of ANI and ALI. This increase in volume of cellular calls lacking ANI and ALI capability will require a need for more trunks to maintain a P.01 grade of service for 9-1-1 and more 9-1-1 operators to maintain established answer time standards. As a result, the cost of 9-1-1 networks and services at the local level throughout the nation will dramatically increase while providing inferior 9-1-1 services than that of wireline telephones.

12. These concerns are not imaginary. The Commission took note of the fact that the number of 9-1-1 calls from wireless devices are dramatically increasing (See, FCC Notice, para. 9.). In New Jersey, the three State Police cellular PSAPs answered 52,912 cellular calls in 1992 and 100,685 cellular calls in 1993. OETS estimates that the New Jersey State Police cellular PSAPs received approximately 158,000 cellular 9-1-1 calls for 1994 which represents a 57 percent increase over 1993. The following chart illustrates this increase in more detail:



13. The lack of enhanced 9-1-1 features on wireless devices has also resulted in an increase in prank calls on 9-1-1 trunks from cellular phones. This is causing problems for both the 9-1-1 network and PSAP operators. In North Jersey, a Paramus police officer was killed when he lost control of his patrol car while responding to a cellular call which reported a bogus shooting at a fast-food restaurant. Recently, a regional State Police cellular PSAP in South Jersey received 92 prank calls from a single cellular telephone within a four-hour period. These calls are capable of over taxing our emergency response system and compete against real calls for 9-1-1 trunks and operators. As occurred in Paramus, prank calls can yield a devastating result.

14. The United States is on the verge of a wireless telecommunications explosion. This shift to wireless devices is inevitable. The cellular industry is starting to install micro cell sites. The personal communications system (PCS) industry is emerging. Nextel is building a nation-wide seamless wireless telephone communications system which will reportedly cover approximately 85 percent of the U.S. population. Six satellite telephone communications systems are planned for public use including the Motorola driven Iridium Project. Wireless telephones from all of these systems will be able to dial 9-1-1. Our mobile society will have the ability, as never before, to report emergencies. Unless immediate action is taken, existing 9-1-1 networks will in fact be providing less public safety assistance to the public. The Commission, with the assistance of industry experts and emergency services representatives, must take a direct and active role in ensuring that wireless devices have enhanced 9-1-1 capabilities. Otherwise, the huge investment made by New Jersey and other jurisdictions in designing and implementing an enhanced 9-1-1 network will be largely wasted.

15. The lack of enhanced capabilities for 9-1-1 calls made from PBXs are also a major concern to New Jersey. One of the best examples of this problem can be found at Princeton University. Princeton University has buildings in four municipalities; Princeton Boro, Princeton Township, Plainsboro Township, and West Windsor Township. Each has their own PSAP and dispatch facilities. Princeton University has a large PBX switch which covers all of their facilities including the student dorms. The main office and the PBX switch are located in Princeton Boro. Therefore, the PBX outbound trunks are tagged as Princeton Boro calls. As a result, when 9-1-1 is dialed on an outside trunk, the call is selectively routed to the Princeton Boro PSAP without regard to where the actual caller is located. In fact, the caller could be in any one of the four municipalities. To date, an effective and economical solution to the problem has not been developed by the telephone industry experts. Indeed, the Commission itself noted that "market forces to date have not been effective in implementing a solution to this problem (See FCC Notice, para. 12.)." It is critical therefore, that the Commission be directly involved in the setting of standards to ensure that wireless devices and "PBX and other dispersed private telephone systems operate effectively with enhanced 9-1-1 systems (See, FCC Notice, para. 12.)."

IV. COMMENTS ON MULTI-LINE SYSTEMS

16. We believe the FCC must adopt rules that would require wireless services PBXs to be compatible with enhanced 9-1-1 systems. PBX systems must have the capability to forward the PBX's extension to the 9-1-1 tandem and its selective router in order to achieve enhanced 9-1-1. Several solutions in the market today propose that pseudo ANI (PANI) from the local PBX switch be sent to the 9-1-1 router on separate

trunks. Typically, this would require two data trunks from each PBX to the 9-1-1 tandem.

17. Systems which required two trunks from each PBX switch to selective routers within the 9-1-1 tandems are not suitable solutions for New Jersey for two reasons. First, the data trunks are a costly ongoing expense for PBX users. Second, the amount of additional dedicated ports on 9-1-1 tandems to support the additional trunks would require a major redesign of existing 9-1-1 systems.

18. The Telecommunications Industry Association (TIA) has suggested a solution to this problem commonly referred to as the T1.411 ANSI Standard. This requires that a unique Emergency Service ID# (ESID) be transmitted directly to the 9-1-1 tandem, bypassing the conventional first telco network local switch associated with the PBX location. The 9-1-1 tandem then routes on that number rather than the conventional line ID that relates to the number of the outbound trunk.

19. There are at least 9,000 PBX switches[1] in New Jersey. New Jersey has three dedicated 9-1-1 3,000 port tandem switches. The ports on each switch are configured identically to provide switch protection in the event of a catastrophic failure of any one switch. This design is in concert with recommendations set forth by the Commission's "Network Reliability Council". With the 9,000 PBX switches in New Jersey, and even if a 10 to 1 concentrator were to be used, it would be cost prohibitive to expand the existing network to accommodate the 1,800 ports needed to support two data lines from each of these switches. As a first step, we would have to double the number of our 9-1-1 tandems. This is neither a practical nor an economical solution and

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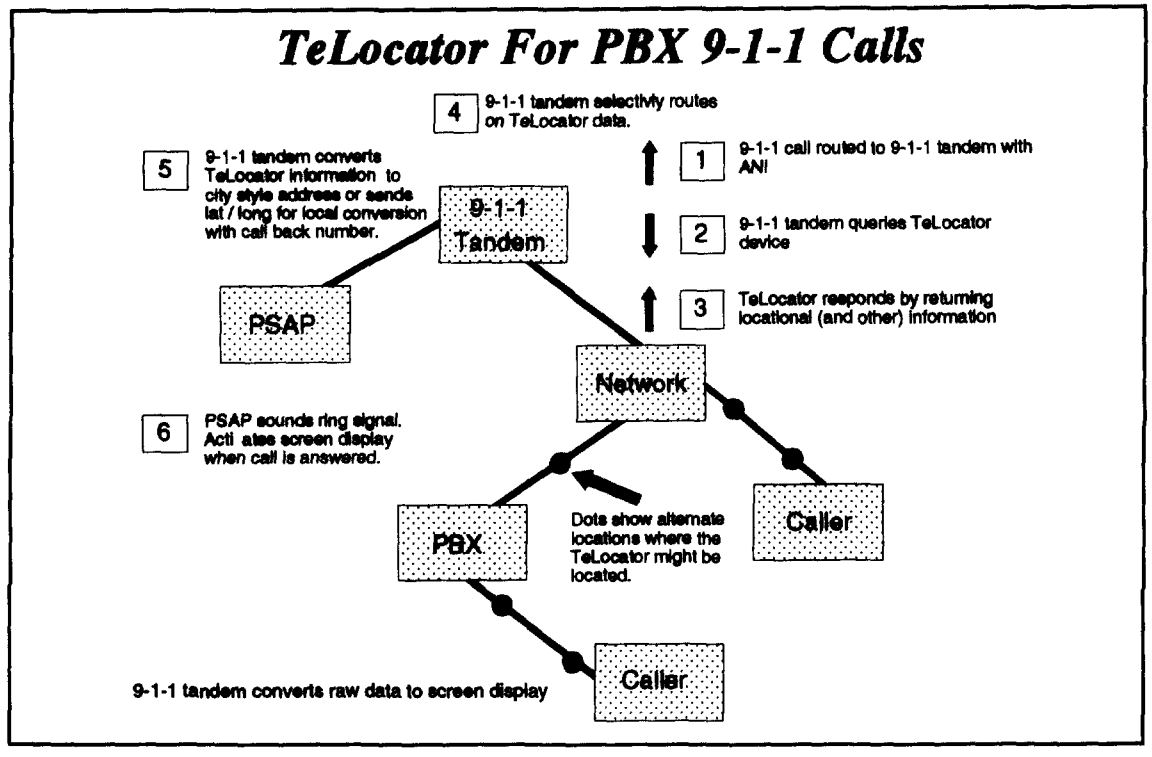
[1] Bell Atlantic-New Jersey has identified 9,000 PBX switches in New Jersey from their customer records.

New Jersey strongly opposes the adoption of the T1.411 Standard by the Commission.

20. A much more practical and economical alternative to the T1.411 Standard, would be to set up a full 10-digit ANI of the PBX extension. Rather than separate circuits from each PBX to the 9-1-1 tandem, the 10-digit ANI could be sent with the call as is done with single line phones. This could be accomplished by a modification of automatic identification of outward dialing (AIOD). This could be incorporated in new PBX switches without necessitating costly and major modifications to existing enhanced 9-1-1 systems and would not cause an on-going financial hardship for PBX users which would otherwise have to support expensive data circuits if T1.411 was adopted. CENTREX provides a block of telephone numbers for their users and we see no reason why a block of numbers could not be assigned to PBXs. Current practices already assign a block of numbers to PBXs which have the direct-inward-dial (DID) feature. These numbers could be outpulsed to 9-1-1 tandems rather than or in addition to the associated ANI number of the outgoing trunk.

21. New Jersey has reviewed and tested a system called the TeLocator which will route 9-1-1 PBX calls without the need of additional circuits. This system will pass the PBX extension locational information in-band to a 9-1-1 tandem on existing PBX outbound trunks. The TeLocator device can be programmed to yield a psuedo ANI or latitude and longitude as desired. The following chart illustrates the system in more detail:



22. The ANI and ALI database from PBXs extensions must reside in the same database as other wireline telephones. The same requirement which the telephone companies and governmental subdivisions are under to ensure accurate and timely transmission of ANI and ALI 9-1-1 database information from single line phones could also be extended to PBX owners for each PBX individual extension. This cost effective alternative will allow selective routing at the 9-1-1 tandem.

23. PBXs in excess of 25 phones or which serve multiple buildings and have access into the public switched telephone network (PSTN) should have the same enhanced 9-1-1 features as plain old telephone service (POTS). Regardless of the size of the PBXs with PSTN access, all PBX extensions should have the ability to reach emergency services by dialing 9-1-1 without having to dial any additional digits such as a digit 9 for a PSTN dial tone. We agree with the Commission's proposal that will require

PBX equipment domestically manufactured or imported prior to the implementation date of the rules be labelled with a warning describing its limitations for those attempting to use to call enhanced 9-1-1 (See, FCC Notice, para. 22.).

24. New Jersey agrees with the Commission's proposal on Attendant Notification (See FCC Notice, para. 23.). This would not be in conflict with existing state or local regulations in New Jersey.

25. New Jersey does not agree with the Commission's footnote that suggests that selective routing (SR) is not needed in all areas and that selective routing is only useful when telephones exchange boundaries extend into two or more PSAP jurisdictions (See FCC Notice, para. 6, fn. 8). In New Jersey's view, selective routing features are useful in all areas regardless of the number of PSAPs in a single telephone exchange boundary. Selective routing tables are based on unique Emergency Service Zones made up of the jurisdictional public safety agencies. Each zone is assigned a particular Emergency Service Number (ESN). With multiple police, fire, or EMS districts in a single municipality served even by a single PSAP, unique ALI information is displayed at the PSAP based on the particular ESN. It is not uncommon for a municipality to have five or more individually assigned ESNs.

26. Selective routing tables are steered by the ESN which additionally include alternate PSAPs. The selective routing tables also contain the "selective transfer" numbers for single button selective transfers. The "selective transfer" feature is a feature of enhanced 9-1-1 which is also used by many two-stage PSAPs regardless of telephone exchange boundaries. Therefore, it is New Jersey's position that selective routing is useful for all PSAPs in general.

V. COMMENTS ON WIRELESS DEVICES

27. The lack of enhanced 9-1-1 features for cellular was called to attention by public safety officials when the wireless telecommunications services were first becoming available to the general public. These officials stated then that the inability to identify the location of a caller would seriously hinder the dispatching of emergency services. Over the last several years public safety 9-1-1 officials have continuously pursued this issue with the industry without reaching a satisfactory conclusion. One example of the inability of the industry and public safety to effectively resolve these issues is the PCIA/APCO position paper[2]. This paper failed to resolve the critical issues of how and when to implement wireless enhanced 9-1-1 features. In New Jersey's view, it is imperative that a time frame and method be established requiring that the location and call back number of all wireless 9-1-1 devices be provided at the time of the call.

28. Cellular carriers in New Jersey are required to route 9-1-1 calls to the New Jersey 9-1-1 network. The 9-1-1 calls are then routed to one of three New Jersey State Police Cellular PSAPs or a regional countywide PSAP. However, if the calling party does not know his or her location or cannot speak, or if the PSAP telecommunicator is not familiar with the location of the caller, the results may have a tragic ending. Therefore, PSAPs must have the location of a cellular caller at the time of the call. Without this capability, wireless 9-1-1 systems have less features than a basic 9-1-1 wireline system. Wireline basic 9-1-1 has call trace, call party hold, and ring back, none of which are available on a cellular 9-1-1 call.

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[2] See July 26, 1994 letter of Executive Director of NENA, to Chief Engineer, FCC.

29. New Jersey cellular telephone companies are currently in the process of routing 9-1-1 calls to the New Jersey 9-1-1 network[3] with a psuedo ANI identifying the cell site sector to which the cellular phone is communicating. This is not a satisfactory way to identify the location of cellular callers. First, the cell sites and sectors are not small enough to be of any real value. Second, the cellular caller may not even be in the sector or the radius of the cell site which it is assigned by the cellular controller. This way of locating cellular callers should only be considered as an interim solution and as a secondary fall-back routing system if the primary routing system is unable to perform its function. It has value only to the extent that if the caller can be connected to a PSAP within a close proximately to the cell site, it is more likely that through the dialogue between the caller and the PSAP operator, the caller's location might be determined. That is, of course, if the person is able to accurately describe his or her location. The Commission has proposed that "wireless service providers be required to design their systems so that the location of the base station or cell site receiving a 9-1-1 call from a mobile unit is relayed to the PSAP (See, FCC Notice, para. 49.)." In spite of the limitations of cell site location technology as noted above, New Jersey agrees with the Commission that this proposal should be adopted within one year as an interim step until a better location system is identified.

VI. WIRELESS ALI DEMONSTRATIONS

30. In an effort to stimulate the development of an accurate location system, New Jersey in concert with its 9-1-1 tandem vendor and telephone local exchange carriers, demonstrated a real-time coordinate-based ALI test. Coordinate-based selective

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[3] See attached appendix, "New Jersey Cellular PSAP Guide".

routing software allowed cellular calls to route to the appropriate PSAP based on the cellular caller's X-Y coordinates. Once the cellular caller was connected to the assigned PSAP, a PC terminal at the PSAP operator's position displayed a map showing the actual location of the cellular caller, along with the longitude and latitude, the heading, the speed, and the cellular's call back number. This system was demonstrated during the week of October 3, 1994. Representatives and/or members of the Commission's staff, NENA, APCO, cellular providers, public safety officials, and the press were invited to attend. All in attendance agreed that the system, as demonstrated, worked extraordinary well and such a system could be implemented within two years.

31. There were two main components of the wireless ALI test. First, was the method used to determine the location of the wireless caller. Second, was the method used to route the call to the appropriate PSAP and to display the information. For the New Jersey demonstration, the RALI (Roving Automatic Location Identification) system developed by Smith Advanced Technology, Inc. utilizing an advanced Rockwell global positioning system (GPS) receiver chip was used. RALI, in conjunction with the Rockwell specialized 9-1-1 tandem, successfully routed the cellular calls to the appropriate PSAP, based on the real time X-Y coordinates that were determined by the RALI cellular unit.

32. The calls terminated on two RALI PC terminals located at the testing PSAP in Gloucester County, New Jersey. One terminal displayed the caller's position and call-back information on a street level map for the Gloucester County emergency service zones (ESZ) and a second terminal yielded the same for ESZs in the Philadelphia area. In addition to Rockwell and Smith Advanced Technology, other participants in the test included Bell Atlantic, Gloucester County Communications Center, and KML

technologies.

33. Based on this demonstrated technology, it is clear that GPS is a satisfactory way of determining the location of cellular callers utilizing mobile cellular phones with an external roof-mounted GPS antenna. However, we do acknowledge that the same has not been demonstrated for portable cellular phones which may be used within a vehicle without an auxiliary external roof-mounted antenna. Portable 600 mW phones with a self-contained GPS antenna were not demonstrated. Moreover, the next generation of wireless telephones (PCS) will be portable devices. Therefore, a question remains as to the effectiveness of GPS embedded in a handheld portable cellular phone with a self-contained antenna.

34. Future advancements in GPS might be able to bridge this gap otherwise a second locational system may also have to be used. An additional wireless 9-1-1 beta test, using time-difference-of-arrival (TDOA), will be held in New Jersey in the fall of this year.

35. New Jersey has spent considerable effort researching methods available for locating and routing wireless 9-1-1 calls and feels that a decision on the best method of wireless ALI and ANI must await additional tests. However, New Jersey feels that the FCC's five year proposal for wireless ALI and ANI must be shortened (See, FCC Notice, para. 51.). Testing and evaluations could be accomplished within two years and hardware and software modifications needed could be achieved within two additional years. Therefore, New Jersey urges the Commission to mandate wireless 9-1-1 ALI and ANI features similar to wireline 9-1-1 be in place within four years. To meet this time frame, New Jersey recommends that the Commission appoint a committee under the

auspices of the Commission similar to the Commission's "Network Reliability Council". The charge of this committee would be to review all known locational systems and to recommend to the Commission a preferred wireless ALI and ANI method within two years to be implemented within two years thereafter.

36. New Jersey supports the Commission's proposal to require wireless telephone devices to be labelled on the device and on the outside of the packaging in which it is marketed with the warning as recommended by the Commission (See, FCC Notice, para. 55.). In addition, New Jersey urges the Commission to require that all cellular phone advertisements and marketing brochures contain a similar disclosure.

VII. REAL TIME ROUTING

37. The volume of wireless 9-1-1 calls is expected to pass the volume of wireline 9-1-1 calls in the near future. As stated above, a coordinate based locational system must be developed to selectively route these calls. This system could also be used to route all 9-1-1 calls including single circuit wireline calls, PBX calls, and wireless calls with minimal software and hardware modifications to the public switched telephone network (PSTN). Such a system would (1) eliminate the need for costly dedicated 9-1-1 MSAG database systems, (2) reduce the start-up and ongoing costs of 9-1-1 systems by as much as 50 percent, (3) reduce the problems caused by dual addressing when the postal address is different than the actual address, and (4) avoid the constant updating of databases by local exchange carriers.

38. New Jersey is looking at several ways of accomplishing this goal. One way would be to utilize TeLocator type devices on all PBX extensions and in residential outside connection blocks. Another would list the latitude and longitude in an additional

data field in the central office switch where the ANI number is stored. Once the call is routed on latitude and longitude, the caller's location would appear on a computer map based on it's latitude and longitude with a conversion to a city type address.

39. New Jersey has reviewed a demonstration software package that converts latitude and longitude to a city style address and vice versa. This conversion could either be done at the PSAP or in the network secondary to selective routing. It is our view that it is time to look at new technology to route 9-1-1 calls; technology which can be used equally well with both wireline and wireless enhanced 9-1-1.

VIII. OTHER COMMENTS

40. Call Party Hold and Ring Back were two features of basic 9-1-1 which were not normally included as part of enhanced 9-1-1. New Jersey feels that these features are needed for enhanced 9-1-1 and should be required by the Commission as mandatory features of all enhanced 9-1-1 systems.

IX. CONCLUSION

41. We are concerned that the Commission proposes to adopt general performance criteria rather than extensive standards which will be left up to industry standards-setting committees. This could cause unacceptable changes to existing enhanced 9-1-1 systems. As an example, the T1.411 ANSI standard established by TIA would dramatically increase the cost of 9-1-1 to both providers and PBX owners. Standards must be adopted that are compatible with existing 9-1-1 systems and cause the least amount of change. These standards must be accomplished in a fashion which will not cause unnecessary spending of scarce public funds at the state and local government levels.

42. As noted in the FCC Notice, industry and public safety officials alone have been unable to resolve these issues (See, FCC Notice, para. 35, fn. 41). New Jersey strongly urges the Commission to appoint a committee under the direct control of the Commission to make appropriate recommendations to the Commission as to standards which must be developed to implement the proposed new rules. This committee must be equally balanced by representatives of the public safety community and the telephone industry in order to come up with an effective and practical solution to accomplish the mandates proposed by this proceeding.

Respectfully submitted,

DEBORAH T. PORITZ
Attorney General of New Jersey

January 9, 1995

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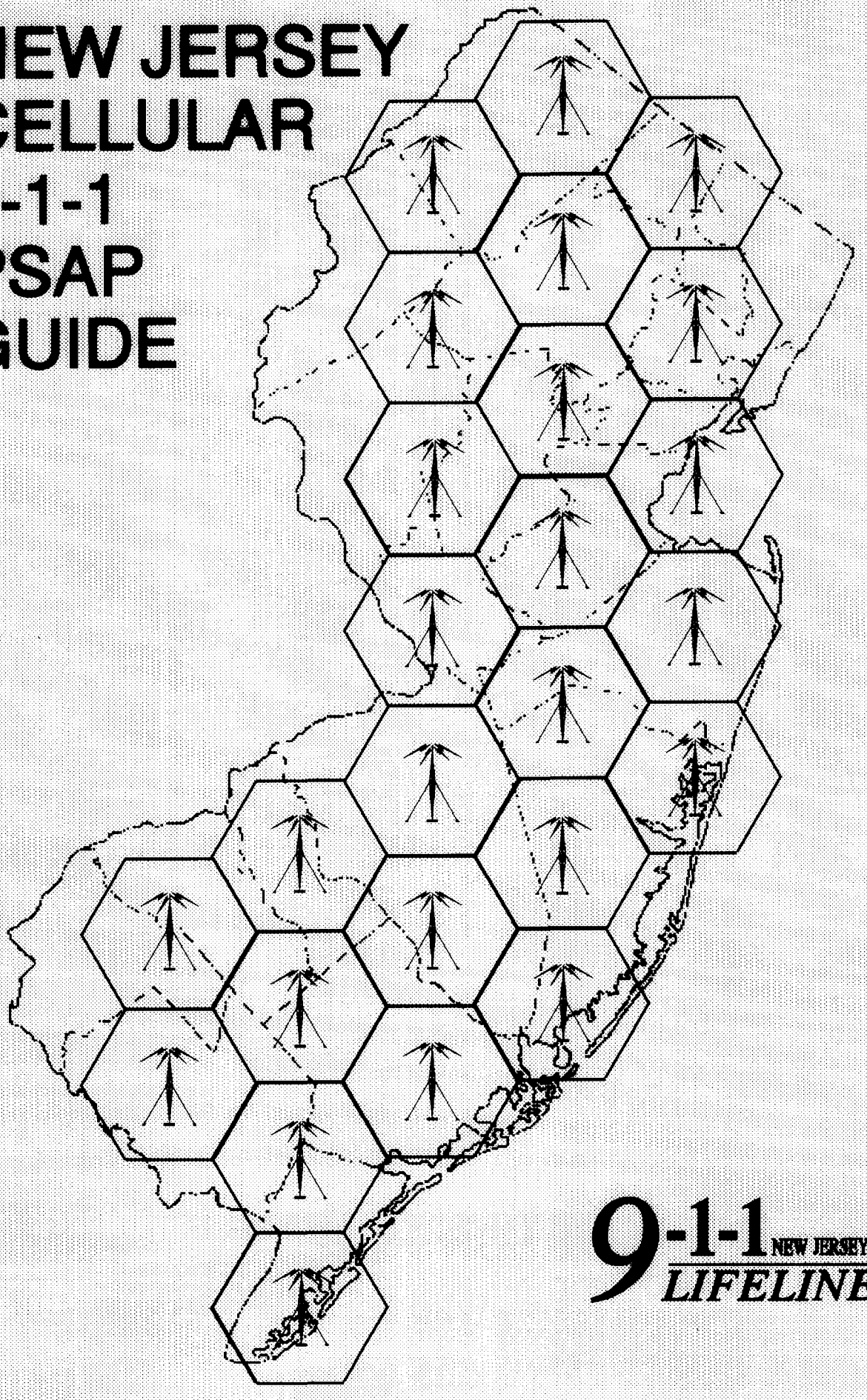
NEW JERSEY CELLULAR 9-1-1 PSAP GUIDE



9-1-1 NEW JERSEY'S LIFELINE

PREFACE

This Guide was prepared by the Office of Emergency Telecommunications Services (OETS) of the State of New Jersey:

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Additional information regarding this guide and/or the New Jersey 9-1-1 Emergency Telephone System may be obtained by contacting:

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Published:
December 1994

INTRODUCTION

The Office of Emergency Telecommunications Services (OETS) has prepared this guide to assist in the training of call-takers at Cellular PSAP locations throughout New Jersey.

When cellular 9-1-1 calls are directed into the New Jersey Enhanced 9-1-1 Network, call-takers must be familiar with the unique obstacles wireless calls pose to 9-1-1 operations.

This guide will give the call-taker a basic understanding of the concept of cellular communications, along with how the selective routing process differs from 9-1-1 calls placed from fixed locations.

BACKGROUND

With limited exception, 9-1-1 calls placed by cellular phones are directed to one of three, New Jersey State Police regional dispatch centers. These centers are located in Hammonton, Troop "A", covering the southern part of the state, Totowa, Troop "B", covering the northern part of the state, and West Trenton, Troop "C", covering the central part of the state.

When a call for assistance is received at one of the NJSP dispatch centers, the communications operator interrogates the caller to determine the location of the emergency, then transfers the caller to the most appropriate agency, via a 7-digit telephone number. To route the call to the correct agency, the communications operator must rely on the information provided by the caller, at times that information is incorrect or, is unknown. Currently, each NJSP dispatch center utilizes a computerized telephone auto-dialer to accomplish this transfer. This auto-dialer contains the emergency police numbers for every municipality and locality throughout New Jersey. To accommodate out of state cellular 9-1-1 calls, selected locations in Pennsylvania, Delaware, and New York are also included in the auto-dialer directory.

This method of handling cellular 9-1-1 calls began in 1987, prior to the 9-1-1 Act which mandated the implementation of a statewide 9-1-1 system. Additionally, this method was implemented at a time when the use of cellular phones was not widespread, due to the high cost of purchasing the phone, and, a cellular network that was still in it's inception. During that time, good cellular coverage was mostly limited to the urban areas of the state, however, today cellular coverage is statewide. The price of purchasing a cellular phone is no longer a major factor, in fact, some

cellular companies even give phones away to attract new subscribers.

In 1989, the 9-1-1 Act was signed into law, mandating the installation of a statewide 9-1-1 system. The 9-1-1 Act required OETS to establish a State plan for the emergency enhanced 9-1-1 system within 270 days of the operative date of the act. In January 1990, the State 9-1-1 Plan was adopted which addressed cellular as follows:

VII. **Cellular 9-1-1**

> The cellular mobile telephone has the ability to constantly move from municipality to municipality, across county borders and state lines. Thus, the cellular telephone number cannot be used to identify the location from which the call originated. However, cellular mobile telephones must be integrated into the 9-1-1 network to the extent possible considering the current state of technology.
>
> The cellular mobile telephone companies must transmit to a New Jersey Bell 9-1-1 tandem, via a single common trunk group, a unique seven-digit identification number for each cell site, or if so configured, each sector at the cell site. The 7-digit number will be the cell site or sector cell where the 9-1-1 call originated. This number will be treated by the 9-1-1 tandem similar to an automatic number identification (ANI) for that particular emergency call and selectively routed to a PSAP designated by the OETS after consultations with counties and municipal 9-1-1 coordinators.
>
> All cellular site locations must be included in the ALI data base. This information is beneficial to the PSAP attendant as a starting reference point for cellular 9-1-1 calls. The cellular mobile carriers shall provide New Jersey Bell and OETS with cell site locations for all existing cell sites and any new cell sites added to their network.

The State 9-1-1 Plan lead to the 9-1-1 Regulations, adoption by the Attorney General in April 1990. In these regulations, subchapter 7, require cellular companies to participate in this system as follows:

SUBCHAPTER 7.

13:81-7.1 Cellular phone companies: responsibility

"Each cellular mobile telephone company shall transmit to a New Jersey Bell 9-1-1 tandem, via a single common trunk group, a unique seven-digit identification number for each cell site, or if so configured, each sector at the cell site. This number will be selectively routed to a PSAP designated by OETS after consultation with county 9-1-1 coordinators and municipalities."

To indicate how the use of cellular phones has grown, in 1988 the average daily cellular 9-1-1 call volume at the NJSP Cellular PSAPs was 39 calls, today the NJSP Cellular PSAPs average approximately 440 calls.

This call volume will dramatically increase as cellular use becomes more widespread and new communication services, such as Personnel Communications Systems (PCS) are inaugurated. All of the inter-state highways encourage the use of cellular 9-1-1 as seen by the installation of the signs along the roadway, indicating "**EMERGENCY 9-1-1 CAR PHONE**".

With the wireless communications industry expanding, the use of these wireless devices for reporting emergencies will be commonplace. Studies indicate that a large percentage of these devices are purchased for the purpose of security when traveling the highways, cellular companies have been using this as a marketing strategy.