RECOMMENDATIONS OF THE NATIONAL MAYDAY READINESS INITIATIVE

October 23, 2000

I.   Summary of the Issues and Recommendations

A. Background

Automobile companies are rapidly deploying millions of vehicles with increasingly advanced abilities to detect, collect and wirelessly transmit crisis-related voice and crash data at the push of a button or the deployment of an airbag. The next generation will use increasingly sophisticated crash data to predict the severity of injury and thus assist emergency responders in sending the appropriate care, as well as reducing response times. This will save lives and reduce severe permanent injuries. But the technologies present a challenge for public emergency response agencies, and now is the time to prepare. Private sector call centers (which initially receive the calls and data from these "Mayday" devices) and the nation's 6000+ Public Safety Answering Points and other responders must be capable of communicating quickly and efficiently with one another.

The National Mayday Readiness Initiative (NMRI) is a public-private partnership of more than twenty national organizations which have been meeting since May to develop and address the primary issues that arise in the dealings between private Mayday "telematics service providers" (or "TSPs", such as OnStar, ATX Technologies, AAA Response) and the nation's public emergency response agencies. The Initiative is co-sponsored by the United States Department of Transportation and the ComCARE Alliance, and is supported by DOT funds and a grant from General Motors/OnStar.

B. What Are the Issues?

Several key issues resulted in or emerged from the NMRI process. First, when citizens dial 9-1-1, or have a crash or push the Mayday button in a telematics-equipped vehicle, they expect appropriate, rapid response. Our top priority is efficient, fast and accurate communications in emergency situations between the public, TSPs and public emergency response agencies, so that the appropriate emergency response can be rapidly dispatched. All of the issues affected or contributed to that basic goal in some way; many affected the intersection between these public and private entities, which should be transparent to the public.

Second is training. It is critical that private call center operators be trained properly, including familiarity with the operating procedures of the emergency response community and the standards created and adopted in the nation's 9-1-1 centers. Similarly, the public safety community needs to be educated about how Mayday works (and how more sophisticated Automatic Crash Notification will work in the future). Private and public responders need to be able to effectively communicate with one another by speaking the same language. Standard operating procedures need to be developed for different situations they will face together.

Third, all private call centers, 9-1-1 centers and other emergency response agencies at the local, state, and federal level need to be able to communicate easily with one another, for both voice and data. Currently, this is not always the case for voice, and almost never the case with data. The service providers have each tried to develop their own data base of 9-1-1 agency 10 digit telephone numbers. Both 9-1-1 and non-9-1-1 agencies (e.g. hospitals) want data notification of severe crashes when they occur. But there is no national emergency contact database from which any appropriate public safety agency can obtain the correct phone number, email, URL and other pertinent information about other such agencies in America, including 9-1-1 centers, trauma centers and hospitals, law enforcement and transportation agencies, and others. And there is no clear process by which these agencies can register on such a data base to be alerted of various events to which they may need to respond.

Fourth, our emergency response agencies are too often operating with outdated technology. Many lack intelligent workstations, high speed data communications links, and access to the Internet. Our response agencies are ending up on the wrong side of a digital divide. A major effort needs to be undertaken at all levels of government to provide them with 21st Century capabilities.

Fifth, TSPs need to describe properly how their Mayday devices work in conjunction with wireless systems and the emergency response community. Ambulances are not "automatically dispatched", and an automatic crash notification cannot occur without a wireless connection from the car.

Sixth, automobiles are capable of producing increasingly sophisticated crash data, from which emergency medical experts believe the probability of severe crash injuries can be predicted. (More sophisticated crash detection systems are called "automatic crash notification" or ACN). However, there has not been a process in which the parties can agree on what types of ACN data can be reasonably captured and transferred to PSAPs and other appropriate entities (transportation entities, EMS and trauma facilities), now and in the future. Nor is there a technical standards coordination process involving all the relevant parties.

Finally, these disparate parties identified the absence of a national forum for education and issue resolution between them, now and over time as the technologies rapidly change.

C. Key NMRI Recommendations

1. We support a new emergency telecommunicator training standard reflecting Mayday and ACN. Public or private training programs used by TSPs should comply with it, as part of an

accreditation program. Training will ensure a common language between private call center staff and the emergency response community. A training module reflecting the advent of Mayday and Automatic Crash Notification (ACN) will be developed and offered as an addition to existing training programs for PSAPs. Over time it is expected that standard operating procedures, "scripts" and checklists will be developed for use between the public and private call takers.

2. We need a national program to create an up-to-date set of linked electronic emergency contact directories, containing full contact information for all public and private emergency response agencies in the United States. A critical element will be the database of telephone numbers for 9-1-1 dispatch centers, but our recommendation is much broader. The program should also include telephone/fax numbers, addresses, email and URLs of all other emergency response and related agencies: hospitals, law enforcement and transportation agencies, FEMA, telephone carriers, Mayday providers, and the like. It will allow, for the first time, the notification of all emergency responders in a small or large area of individual or mass disasters.

   - Contact information will be available on a "need to know" basis only to appropriate agencies, and certified private call centers, not the general public.
   - Decisions on what agencies should be listed and automatically contacted in various circumstances will be made at the appropriate federal, state or local level; those agencies will have the primary responsibility to keep the database up-to-date.
   - The database will be supported by user fees and government grants.

3. Call centers (or any other similar actor) must be able to manually or automatically transfer voice and a package of data (e.g. crash description, location coordinates or map, victim's phone number, personal medical data, URL for more complete data) to any 9-1-1 agency in North America, and to send copies of some or all of that information in real time to other relevant agencies (e.g. trauma center; traffic operations center; State Police). Short and medium term improvements should be studied and implemented by expert organizations.

4. We recommend a campaign to educate the media, government, and the public about the challenges facing emergency response, and the role and benefits of emerging Mayday and ACN systems. These benefits cannot be achieved without wireless service, so we recommend as part of this campaign, a cooperative effort between government, the wireless industry and safety groups to address barriers to full wireless coverage.

5. Guidelines for accurate advertising and marketing of telematics services should be established and enforced along the lines we recommend.

6. Continuing working groups of law enforcement, transportation and TSP representatives will develop guidelines for handling non-life threatening information dissemination, and for other incidents involving law enforcement such as stolen vehicles where appropriate use of the technology could provide significant public safety or property recovery benefits.

7. Similarly NMRI's Sophisticated ACN Committee will continue its efforts to determine what types of crash data can be reasonably captured and transferred to PSAPs and other entities (transportation, EMS), now and in the future, and how an accurate urgency algorithm can be developed and kept up to date.

8. The nature of Mayday and ACN is that a wide variety of parties are involved in developing, sharing and using crash and related data. A technical standards coordination effort should be initiated so that all the appropriate stakeholders are involved in relevant standards which affect their responsibility. This should be led by an organization such as ITS America or US DOT and should include contacting the standards leaders in the relevant bodies (i.e. SAE, ITE, IEEE, TIA, NENA, APCO, ASTM) to insure coordination and inclusion of groups which typically would not participate in technical standard setting, such as leaders in emergency medicine.

9. The NMRI process should be institutionalized in a non-profit consortium, with equal public and private representation by the key stakeholder organizations.

    - The Mayday Consortium will carry out the NMRI recommendations directly and in cooperation with others, and provide a forum for resolving unfinished issues and new ones as they arise in the future.
    - It will accredit TSPs based on training, operations, and advertising practices, and widely advertise to the emergency response community and the general media and public which companies have received accreditation.
    - It will provide the coordination and leadership to develop an emergency contact database, and govern access to it by private entities.
    - Before commencing, a detailed plan will be developed for the Consortium by all the stakeholders, including a business model, bylaws, Board structure, membership and terms, and details of the other matters discussed here. The stakeholders will review existing channels of communication and public/private processes to coordinate among governmental and private interests.

   The following detailed recommendations are in five sections, and reflect the considerations of our working committees. They are (1) emergency information and operations; (2) training and protocols; (3) incident management and law enforcement; and (4) public education and business practices; and (5) proposed consortium. Additional recommendations are in process.

II. Emergency Information & Operations

A. Vision

1. Public safety needs the most modern telecommunications capabilities, developed and deployed with the speed, reliability, accuracy and security that are so vital when lives are at stake.

2. We recommend a public education program on 9-1-1 and emergency response, and a concentrated effort to upgrade its capabilities.

3. "9-1-1" needs to be instituted as the public emergency telephone number in all parts of the United States, consistent with the recently expressed intent of Congress.

4. The explosion and safety promise of telematics and wireless, and the conjunction of Mayday and wireless Enhanced 9-1-1 issues, represent additional and compelling reasons why the capabilities of public safety and public emergency communications must be upgraded in the near future.

5. Outside of emergency communications, modern telecommunications is rapidly moving away from the traditional circuit switched network systems to data-driven, packet-switched systems, using Internet Protocol. Outside of emergency communications, modern computing is moving away from on-the-desk intelligence and towards intelligence in networks. The sharing of information in real time among all affected entities is the hallmark of a modern telecommunications system.

6. A modern emergency communications system may save public safety significant amounts; certainly its aggregate social benefits outweigh its costs.

7. Many of the same communications and computing capabilities which are necessary or desirable in addressing individual emergencies are equally valuable for mass disasters.

8. Many of the same communications and computing capabilities which are necessary or desirable in addressing individual and mass emergencies are also valuable for commercial purposes. We actively encourage integrated and multiple use systems and platforms; "purpose-built" platforms and systems tend to be more expensive and slower to deploy.

We recommend achieving the following as soon as possible:

9. Ultimately, emergency telematics calls should receive the same priority and treatment as any wireless 9-1-1 call as it arrives at a PSAP.

10. Emergency communications must give equal importance to voice and data, and agencies should not be restricted in the size or type of data which can be attached to voice calls and messages.

11. All emergency agencies need to be connected in a seamless network using the most modern telecommunications in a manner consistent with the speed, reliability, accuracy and security necessary for public safety purposes.

12. All government and private entities with emergency response missions will be expected and encouraged to provide policy and financial support to develop this communications and database capacity.

13. National emergency networks, and all emergency and public response entities, need to have a series of important tools and capabilities, including:

    - 24X7 high speed digital links to the public networks, including the Internet.

    - Intelligent workstations.

    - Information (voice and/or data) put into the network in any location should reach the right agency(ies) in any other North American location. Accredited or authorized call centers (and any other similar actor) must be able to manually or automatically transfer voice and packages of data (e.g. crash description, location or map, victim's phone number, personal medical data, URL for more complete data) over secure networks to any PSAP in North America, and to send copies of some or all of that information in real time to other relevant agencies (e.g. trauma center, traffic operations center, State Police).

    - INC should establish the digits 911 as an NXX or exchange code in every number plan area (NPA, a.k.a., area code) in North America. A 911 telephone number in the format NPA-911-XXXX would be assigned to each PSAP and each municipality (and use technically restricted to only approved users).

    - Emergency agencies should have Internet and email addresses.

14. Effective tools need to be used to protect privacy, enforce "need to know" and prevent unauthorized access or use of the emergency networks or databases.

15. While preserving state and local flexibility as much as possible, the system should allow systemic software upgrades, and standardization, rather than the current system where intelligence is often localized and tied to proprietary hardware and software in "one off" systems. The latter results in significantly higher per unit (call taker or dispatcher) costs for public safety agencies. Nothing in this section precludes local decision making and choice.

16. We encourage extensive field testing of sophisticated ACN systems, including research funded by the Federal Government, to confirm initial findings that such systems can function without significant levels of false positives, that crash data can distinguish between serious crashes and "fender benders", and indeed can predict the probabilities of severe injury. (Our ACN Committee is developing detailed recommendations in this regard.)

17. Direct delivery of telematics emergency calls and data to PSAPs should be accomplished when the affected parties agree that it is feasible and will enhance public safety.

18. "Direct delivery of telematics calls and data to PSAPs" simply means that the intervention of a human being at a private call center would no longer be required. Special data residing on a call center server (e.g. personal medical information) could still be "picked up" and added to the data being sent to a PSAP or EMS agency if the subscriber had paid a TSP for such a service.

19. TSPs should meet certain operational standards and be accredited if they have done so. These standards should be drawn from similar efforts where appropriate (e.g. UL, NFPA 1221), and will include:

    - Full time operations ("24X7")

    - Appropriate infrastructure and facility redundancy to guard against service interruption

    - Staff training, as described below

20. Proper voice access to PSAPs, proper routing and the transfer of location and other information to PSAPs were all issues of concern to NMRI members. Nothing is more important to the NRMI participants than rapid, correct access by the public to the right public response agencies in cases of emergencies.

21. We discussed proposed offerings by two companies that can be made available, relatively soon, to address issues of concern. There was some level of debate over their various strengths and weaknesses. It appears that both may offer substantial improvements over the current system. The NENA technical committees are engaged in a careful review of these and other offerings to determine the requirements and standards to be followed for routing and interface purposes. NENA is also engaged in an effort to define the method and the attributes of non-traditional signals that are recommended for emergency calls made from telematics and other non-traditional sources.

22. We strongly encourage private sector competitive enhancements to the process of delivering increasingly sophisticated emergency information to the appropriate entities. We compliment and encourage companies which seek to be business successes while helping the public and public response agencies address emergencies.

B. Database

1. There is today no comprehensive national emergency directory of the full range of emergency agencies (including telephone, street and internet addresses) for use by parties ranging from private telematics service providers to the President of the United States in situations ranging from individual car crashes to mass emergencies.

2. The consortium should work with all relevant public and private parties to ensure the creation and maintenance of an accurate, up-to-date, set of interconnected electronic directories of the relevant 9-1-1, public safety, transportation, law enforcement, EMS, carriers, call centers and similar entities, including: telephone and fax numbers, street and internet (email and URL) addresses, and jurisdictional boundaries. Many such directories already exist in whole or in part for some portions of this universe of agencies or information. Before commencing activity in this area the consortium should carefully review such existing directories and activities by agencies and the private sector. And it should develop a careful and detailed business plan.

3. The 10 digit numbers listed in the directory must be used only for emergency calls; administration numbers should also be separately listed. PSAPs and others need to maintain a telephone number(s) for 10 digit emergency calls.

4. This directory would be available to accredited parties and/or appropriate public and private entities granted access, but <u>not</u> to the public. The directory would be made available only on a need to know basis (i.e. not all of it would necessarily be available to all users). In addition to accredited telematics service providers, local and long distance telephone operators are examples of non-government entities that would warrant access to parts of the directory. Some primary uses of the 10 digit telephone number portion of the directory would only be temporary until such time as these calls could gain access to the 9-1-1 network.

5. The adoption of various improvements in delivering telematics calls to emergency responders (such as the proprietary offerings discussed at some length in our proceedings), will not eliminate the need for an accurate and up-to-date directory of 9-1-1 PSAP service areas and telephone numbers. Among other things this directory would provide a method for out-of-area emergency call placement, where dialing 9-1-1 either would not connect with the proper PSAP or where dialing 9-1-1 failed due to congestion or equipment failure.

6. Some of the necessary data for a national database already exists in multiple places; in other cases there is significant entry, compatibility and translation work to be done. Ultimately, this will not be a single directory or data base in the traditional sense. Instead, it is anticipated that it will be a tightly compiled, distributed system, which is stringently and aggressively managed with a coordinated set of directions.

7. Key functions will be to make data on different servers and systems compatible, to make the appropriate entities aware of the system and its capabilities, and to make it "user friendly" in enabling seamless information sharing. The consortium should clearly define roles, responsibilities and resources needed to create this database. In addition, it should fully explore and list data sets each sector of government and the involved private sector organizations might expect from each other.

8. The consortium will work with the various stakeholders, particularly those with portions of the database, to develop both templates for data entry (so different agency and geographic data bases will work with each other) and a process by which affected agencies will be made

aware of the directory, its contents, its benefits to them, and the necessity of entering the appropriate data and keeping it current. Government grants will be sought and applied to these purposes.

9. The database will be maintained on secure servers where it will only be accessed by authorized parties as needed. The security provided will be consistent with the requirements established by government regulations pertaining to the respective types of data (e.g. medical records) and best commercial practice, taking all necessary steps to protect the database from unauthorized access and contamination (intentional or unintentional).

10. Decisions on what agencies should be listed, and which should be automatically contacted in various circumstances should be made at the appropriate state or local level (assuming the owner of the relevant data agrees), and those agencies will have both the ability and responsibility to keep the database up to date.

11. The costs of building and maintaining the database will be appropriately shared among the public and private users. As it will provide a new capability for national and state governments to notify all affected federal, state and local response agencies (and relevant private organizations) rapidly and easily in mass disaster and weather situations, grants from national security agencies, NOAA, and FEMA should be solicited and provided.

12. The data base will be managed by a non-profit public/private organization which will be representative of the affected public and private stakeholders. It will be responsible for the development, maintenance, use and funding of the database. It will have the power to contract with private entities to perform a variety of the necessary functions. It will be held responsible for the quality and reliability of the database, and for accomplishing this mission in the most cost effective way possible. It will work closely with the federal, state, local and other agencies represented in the database.

   Note: One member disagreed that this function would best be done by a non-profit, public/private organization. It suggested that a commercial entity could manage this system to the required service levels as an addition to existing commercial operations at a cost that is lower than would be incurred by a "purpose built" organization.

C. Moving from Voice Only to Data Transmission

   Moving from the current system where voice dominates to one where significant amounts of possibly relevant data are also available (and indeed may be either linked to voice communications, or come from multiple locations) raises a number of challenges and issues.

1. No one responder or facility may need all of the data all of the time, and sifting through a large amount of data to find those items of real value may waste time and, conceivably, slow down the emergency response we are trying so hard to expedite.

2. There is a wide range in the technical capabilities of public agencies. Some are installing or outsourcing the latest in telecommunications and data capabilities; others do not have

intelligent workstations or access to the Internet. Under the best of circumstances, the upgrading of public safety capabilities will occur over time, and unevenly across the country.

3. There is also a great diversity in agency practices, which can be expected to apply to the new technologies like telematics and ACN as well. Some agencies will want large amounts of data; some communities will want data shared with different agencies; circumstances and ground rules for sharing will vary state to state, and city to city.

4. Data services need to reflect both this range of capabilities, and the particular desires of the affected community. It is generally impossible for national or regional services like telematics or wireless to accommodate individual jurisdictional desires directly. They need uniform standards and outputs. Modern IP and server technology allows systems to be created which will let recipient agencies tailor informational output to their needs.

5. Thus, PSAP telecommunicators, trauma surgeons and traffic managers could view/download only those pieces of information they need, want, or are allowed to see, ignoring the rest. Various levels of detail could be available. A PSAP telecommunicator should have the option of viewing the data in the form of a map with pre-formatted supportive text, or of downloading the raw data to his or her CAD system (which might, for example, convert the data into the closest address).

6. Whatever other information is provided, to ensure a call back capability, each communication from a TSP should provide a response agency with the call center staff person's name, or operator number, 24X7 call back number and electronic address where the data can be found (if applicable). Standard practices may also require other information for telematics calls in the future.

7. Beyond the direct delivery of a voice call to 9-1-1, which other emergency response agencies receive what information are decisions which must be made at the state and local level. Private call centers cannot be expected to convene that decision making process, or even participate in it. That decision can be enabled by a Web-type system for entry and updating by government agencies which wish to be notified, and made possible economically by automatic messaging, or a single shared web site.

8. In the near term, use of the Internet could be an improvement in the delivery of emergency call related data, and this could be made available relatively quickly and cheaply. TSPs could load any particular crash and location data they chose (and emergency responders want) onto a secure website, and any PSAP (or any other appropriate agency, such as a hospital) with a CRT terminal and access to the Internet could access this information. TSPs appear to be willing to provide all available crash-related data, consistent with their technical ability to deliver it, and contractual terms with their subscribers and automobile companies.

9. If electronic addresses were available, instant messaging could be used to notify the appropriate PSAP (or any other agencies) that information about an incident in its area was available by clicking on the attached icon or URL. The phone number of the victim/caller

could be used as the identifier to pull up the correct screen(s), when agencies accessed the secure website.

10. Some members expressed concern about the security and reliability of use of the Internet, believing data to PSAPs should only be automatically provided (no manual query of secondary data bases) and then only over a private, secure network. In addition, the time constraints of non-automatic information provision, and availability of the Internet to all agencies, may be obstacles.

D. Technical Standards

The NMRI process identified a wide variety of changes in methods, procedures and/or standards of emergency communication driven by the new wireless and automotive based technologies. These will affect many stakeholders. Neither NMRI or the Consortium should be technical standard setting groups. A variety of such groups exist, and indeed a number were ably represented in our process.

The nature of Mayday and ACN is that a wide variety of parties are involved in developing, sharing and using crash and related data. But standards are being set without necessarily including all the affected parties. We should first review the following standards and others, and identify those changes in methods, procedures and/or standards which are necessary to achieve the goals set by the NMRI participants.

Then a technical standards coordination effort should be initiated by a consortium or other existing forum so that all the appropriate stakeholders are involved in developing relevant standards which affect their responsibility. The recommendations of this process should be implemented by an appropriate organization such as ITS America or US DOT. This organization should then contact the standards leaders in the relevant bodies (i.e. Council of Standards Making Organizations, SAE, ITE, IEEE, TIA, NENA, APCO, ASTM, ITSA) to insure coordination and inclusion of groups which typically would not participate in technical standard setting, such as emergency medical service leaders.

1. NENA technical committees should determine the method by which the 9-1-1 networks and PSAPs will interface with data sent by cars.

2. Similarly, voice and data access and transfer methods (e.g. SAE "Onboard Land Vehicle Mayday Reporting Interface" standard (SAE J2313) is intended to address the vehicle to center communications. It is a first step toward getting all mobile devices and call centers communicating in a standard format. We believe it needs EMS and 9-1-1 input. The NENA technical committees will report on the methods available for the interface of the data to the PSAPs.

3. IEEE P1512 center to center standard is now final. It is a Base Standard for Incident Management, Public Safety, and Hazmat message sets between centers. It is being enhanced with more application specific information. One NENA member has been involved with this

standard, but no EMS members. There is a subcommittee working on Mayday issues on these standards.

4. ANSI/SIA's MSD-01 is an example of a procedural standard that is critical to the interaction between third party call centers and PSAPs.

5. See IACP's "Response To Mobile Security Alarm Devices". It was drafted by IACP and SIA representatives in 1999, and can be found at www.iacp.org in the Private Sector Liaison Committee (PSLC) section. Although not a standard, it is an useful policy statement that should inform future standard development.

6. NENA is working on a Non-Traditional Signal Standard for E9-1-1 calls to PSAPs. NENA has just compiled, and is circulating a Draft Discussion Paper on Non-Traditional Signals to PSAPs that define and explain the technological aspects of E9-1-1 and non-traditional signals.

7. Other SAE standards to be considered for relevance to NMRI concerns include:

J2366 Intelligent Data bus (within vehicle only)
J2353 Data Dictionary for Advanced Transportation Information Systems
J2354 Interactive Traffic Information Services
J2369 Broadcast Traffic information Services
J2371 Information report on Location reference message sets
J2540 Strings and Lookup tables
J2256 In-vehicle Navigation System Communication device message sets

8. The following are IEEE standards which should be considered:

1455 Standard for message sets for vehicle/roadside communications
1488 Standard for Data Dictionaries
1489 Standard for Data Dictionaries for Intelligent Transportation Systems
P1512.a Data Dictionary
P1512.1 Traffic Management centers message sets during the course of a highway incident.
P1512.2 Public Safety centers message sets during the course of a highway incident.
P1512.3 HAZMAT message sets during the course of a highway incident.

9. TIA has a variety of standards under development which may affect the issues addressed in NMRI. Finally, a series of Underwriters' Laboratories, National Fire Protection Association and Security Industries Association standards should be considered.

UL 827 -- Central Station Alarm Services
UL 636 -- Holdup Alarm Units & Systems
UL 639 -- Intrusion Detection Units
UL 1023 -- Household Burglar Alarm System Units
UL 1037 -- Anti-Theft Alarms & Devices
UL 1069 -- Hospital Signaling & Nurse Call Equipment

UL 1635 -- Digital Alarm Communicator System Units
NFPA 70 -- National Electric Code
NFPA 72 -- National Fire Alarm Code
NFPA 101 -- Life Safety Code
SIA Audio Verification -- Two Way Voice Command Set Standard
SIA Control Panel -- False Alarm Reduction Features Standard
SIA Digital Communications -- Receiver to Computer Interface Standard
SIA Digital Communications -- SIA Format Dialer Protocol Standard

III. Training and Protocols

A. Training Standards and Programs

1. Mutual understanding is needed between public responders and Mayday call-takers. Private call center operators need training on the language and procedures of the public safety community. Likewise, the public safety community needs to be aware of the expanding Mayday market, how accredited TSPs operate, and the coming of Automatic Crash Notification (ACN).

2. The APCO Project 33 *training standard* (9-1-1 Telecommunicator) will be updated to reflect the advent of Mayday and ACN. A new standard will be promulgated to address the emergency training needed for TSPs. The suggested standard changes and the suggested new standard are attached.

3. Public safety training organizations need to update rapidly their training programs to meet this new standard, including material about telematics, private call centers, Mayday and ACN. In consultation with public safety, TSPs should amend and update their training courses to meet the standard.

4. We are exploring the proper and most efficacious approach to providing private call center trainers the emergency knowledge they need so they can teach courses which meet the new standard.

5. A training module about Mayday, ACN technologies, and the operations of certified TSPs will be developed and offered to PSAP trainers as an addition to existing training programs for PSAP staff.

6. The compliance of TSPs in meeting the standard through their training programs will be audited. TSPs and their trainees will be able to submit prior training completion for partial credit toward meeting the standard.

7. From time to time the standard operating practices and training practices will be reviewed and updated to reflect new technology and service practice developments.

B. Operational Guidelines

1. On an on-going basis, we will develop consensus guidelines and specific suggested procedures for addressing common situations that TSPs and public agencies encounter. These will be circulated for use by appropriate public and private call taking organizations.

2. We agreed that a procedure will be set to ensure that PSAPs know that they are dealing with a certified TSP. Similarly, the group agreed that if an airbag deploys and a certified Mayday call taker cannot establish a voice connection with the victim, the proper action for the Mayday call taker is to call a PSAP.   PSAPs should expect and cooperate in handling such calls, including informing the TSP of the dispatch of emergency response units.

3. We note that these guidelines will govern the dealings between trained and certified staff on both public PSAP and private TSP sides of an emergency call, rather than the usual general public to PSAP interaction.

4. As a starting point, the following national standard definition of situations in which TSPs should call PSAPs is suggested:

> "A call center operator, with appropriate training and certification, under the circumstances reasonably believes that emergency assistance (police, fire, or ambulance) may well be required."

> Or, "A telematics customer has requested 9-1-1 and there is no reason for the appropriately trained and certified operator to believe that is inappropriate."

IV. Incident Management and Law Enforcement

A. In General

1. All emergency agencies should be connected in a seamless network using the most modern telecommunications in a manner consistent with the reliability, accuracy and security necessary for public safety purposes. This, and numerous other recommendations discussed above, equally apply to non-emergency/non-collision situations as they do to life-threatening emergencies.

2. Modern computer and communications technology clearly allows real time notification of multiple agencies of incidents and other events in which they do, or may, have an interest. For example, we can share crash and other emergency data in real time with non-9-1-1 agencies. We recommend taking advantage of this new capability.

3. Law enforcement agencies are already connected together through messaging systems like NLETS (the National Law Enforcement Telecommunications System) and databases linkages like the National Crime Information Center (NCIC).

4. Law enforcement, transportation and other similar agencies should be connected to TSPs and each other in a national network, relying in part on the national emergency contact database previously recommended. That directory of telephone, street, and internet addresses will assist in the real-time notification of incidents. The recommended consortium will work with the various stakeholders to develop both templates for data entry and a process by which affected agencies will be made aware of the directory, its benefits to them, and the necessity of entering the appropriate data and keeping it current. Government grants will be sought and applied to these purposes.

5. Each state needs to organize the relevant stakeholders (e.g. EMS, transportation, law enforcement, Weapons of Mass Destruction, FEMA, etc) into a coherent process in which those agencies determine (a) which agencies (b) want what data (c) under what circumstances, and (d) how they should receive it.

6. Once this has been determined, procedures must be developed so that agencies have to qualify/be certified to have access to specific data sets. This will preserve privacy and commercial rights. (For example, a treating hospital would probably have access to a Mayday subscriber's medical history, provided by the telematics service provider with the subscriber's consent, but a State DOT would not have access to that information. It would only know there was a high speed crash at a certain location and the type of car involved.)

B. Incident Notification and Management

1. Accredited private call centers must have the proper phone numbers, and electronic addresses for automated notification, to contact various incident managers.

2. In developing the National Emergency Database, a default should be set for various types of incidents as to who to contact and if it is necessary to contact a PSAP. As some agencies will want data to know that an incident has occurred, but not the voice call to go with it, there should be different defaults for voice and data. Thus, call centers could use the default, but it could be changed by state and local agencies for their jurisdictions.

3. Similarly, there might be different default parameters (again controlled by the local information recipients) to determine the distribution of incident information based on time of day, area of town that incident occurred, special circumstances in the location of the incident (concert, sports event, etc.)

4. These default parameters need to be editable by different state and local jurisdictions. State and local agencies need to be able to access the emergency database to set their own information requests based on local needs.

5. There clearly is commercial value in such incident information. Beyond getting assistance to subscribers in 9-1-1 situations, the stakeholders did not discuss the economic terms of these transactions, other than the general conclusion that the economic value should be controlled by the owners of the information.

C. Law Enforcement Intervention

1. Regardless of the type of incident, a security system needs to be developed so that TSPs know they are dealing with legitimate law enforcement agencies. Every law enforcement agency and TSP should have an electronic code ("secret handshake") that enables both parties to easily recognize one another. This code can be created by using a public key-private key system for communications between TSPs and law enforcement. Several such products are now available.

2. NMRI discussed at length specific incidents in which protocols or standard operating procedures need to be developed for law enforcement intervention with TSPs. NMRI members are developing suggested incident protocols for TSP/agency dealings on:

   - Pursuits
   - Stolen vehicles
   - Missing persons
   - Alleged crimes in progress
   - Quarantined areas

3. A task force on these issues of law enforcement agencies and TSPs needs to continue to meet as part of the recommended on-going efforts. Other similar issues suggested for future treatment are:

   - Medical emergencies
   - Bio-hazards
   - Bomb threats

- Disabled vehicles

4. TSPs will work with law enforcement to propose language to include in subscriber service agreements which explains the circumstances for possible law enforcement intervention with their Mayday Service Provider. The subscriber agreement should have a section asking the subscriber if they grant permission to the TSP and law enforcement to take certain actions to preserve life and property.

D. Post Crash Use of Crash Data: Aggregate and Individual Data

1. Use of Aggregate Crash Data. Aggregated data from Mayday/ACN devices offers a variety of exciting possibilities for improving safety. Not only will the data be useful for helping victims in individual incidents, but it can be aggregated into a database to be used for analysis by both the public and private sectors. Specific approaches are being developed by our ACN Committee and include: (a) improving the ability of such devices to predict injury; (b) car design; (c) early warning of defects and other crash causes; (d) notice to traffic, law enforcement and others of the locations of crashes. Such uses would not require disclosure of individual identities. The speed of collection and quantity of crash data would far exceed any other resource available today.

2. Use of Individual Crash Data. Led by our law enforcement members, we strongly believe privacy concerns based on the use of crash data in post crash law enforcement are misplaced, and should not be used to delay the deployment of sophisticated ACN.

   - Decades of crash investigation experience and technique development mean that law enforcement does not need Mayday or ACN data to know generally how fast a driver in a crash was going, where or whether the brakes were applied, and so on. Such information is essentially already available, in public (i.e. the scene of a crash). Mayday and ACN devices make post crash investigation easier, faster, more accurate and less expensive, both for crash victims and law enforcement, but they do not create qualitatively new information which did not previously exist, or make it available to parties (e.g. law enforcement) which would not otherwise have access to it.

   - The big difference from the past is that with Mayday and ACN the crash information is provided in real time to agencies which can save the lives of people in the car.

E. Notification and Communications During Regional and Local Disasters

1. The national emergency database previously recommended would include all public and private agencies with responsibilities during emergencies. This would allow agencies like FEMA and NOAA a nationwide emergency two way communications capability (starting with a data network) which does not currently exist. Agencies from any point in the US would be able to notify other agencies anywhere else in the country of potential emergencies – and notify commercial entities which can in turn notify the public. This would include terrorist attacks, severe weather warnings, hazardous materials spills, and any other mass disasters, as well as sharing the individual emergencies which were the focus of NMRI.

2. Certain more limited capabilities do currently exist for notification of certain types of threats, including the Emergency Alert System (EAS), and the National Oceanic and Atmospheric Administration's (NOAA) "All Hazard Warning Network, " and local "sigalert" systems. However, none of them allows the President of the United States, the director of FEMA, or the Governor of a State to instant message all emergency responders in a region alerting them of a disaster, much less be able to reach most of the public, much less to have two way communications. In such a situation, the current method of notification is through a "telephone tree", commercial broadcasts, and more limited agency networks.

3. Reaching the public in such emergencies presents another set of challenges. This is more or less possible depending on the particular technology. New communications technologies, ranging from telematics to wireless phones, PDAs and pagers, to the Internet create and allow new channels of emergency communication to the public.

4. We do not recommend any technology regulation, indeed that would be counterproductive. But we strongly encourage the private sector to develop and expand service offerings and technical capabilities which will allow localized emergency information delivery. There are several companies that deliver emergency warnings to the public over the landline telephone network, and wireless and paging companies are beginning to offer "short message services". We believe those companies would readily cooperate when notified of emergencies.

5. A very useful first step will be to organize the emergency contact database system so all telecommunications outlets could enter their contact information and keep it up to date for such notification purposes. For example, in addition to TSPs, Internet Service Providers, wireless telephone instant messaging service providers and others should be notified in real time of emergencies so they can in turn notify their subscribers -- if they have that capability. Standard Operating Procedures would need be developed cooperatively between government and industry for such purposes.

6. TSPs should be notified by various government agencies of weather and other events which may affect their customers. And such TSPs should seek to develop (or have OEMs develop) the ability to notify their customers of existing incidents through the vehicle (text to speech systems in the car, Satellite Radio, etc)

7. We encourage the Department of Defense' NCS, the US Department of Commerce and the Federal Emergency Management Agency to play a leadership role in this area.

F. Providing traveler information on highway conditions

1. We need to take advantage of 5-1-1, E9-1-1 and other technologies which will allow gathering and/or dissemination of emergency and incident information to the traveling public to enhance safety, transportation efficiency, and their driving convenience. There are currently services offered by many public traffic operations centers and private companies which deliver traffic information to consumers. The new technologies and sharing of

incident information should significantly improve the quality of this information. US DOT and ITS America can be expected to play a leading roles this area.

V.   Public Education and Business Practices

A. Public perception and expectation of current emergency response systems

1. A public education campaign on 9-1-1 today is needed, both to set public expectations correctly, and to build greater support for upgrading emergency response capabilities.

2. "Safety Sells", but people are not informed as to how emergency response really works. There is too often a lack of understanding that "9-1-1" or emergency response is not just one central organization that dispenses help, but instead involves a chain of private and public capabilities, and in this case cooperation between private entities and those public agencies.

3. The public must know the benefits of telematics and 9-1-1, but also how they work, especially the interaction between private and public entities. They need to know that response may not always be immediate. This will create proper public expectations.

4. We recommend that a standard brochure be produced by the consortium and given to all telematics purchasers by TSPs educating them about how the "emergency response chain of survival" works. This idea is similar to the one followed by CTIA. (A brochure about advice on safe use of phones is required material in the box of all new wireless handsets.) The recommended brochure would describe the emergency response system, the role of private call centers, the benefits and limitations along the chain of survival, and any other pertinent information. Language used in the brochure should also be posted on TSP websites.

B. Accuracy of Advertising and Marketing Practices

1. In marketing communications presenting telematics services, steps must be taken to ensure that advertisements are presented in a manner that is realistic and do not paint a picture of a "magic call for help" that immediately sends assistance. Telematics is sometimes portrayed as such by its own advertising.

2. There needs to be detailed description of the telematics service in automobile/telematics owner manuals covering the following points:

    -   There must be a detailed description of the process of a Mayday call. The manual needs to identify in one location what each participant in the response process does, and when—from the customer, through the wireless carrier, to the Mayday call-center, to public safety. The brochure mentioned above should accomplish this as well.

- The public must know that the telematics service provider (TSP) is there to assist getting help to the victim., but that they do not actually dispatch. Reference should be made to "contacting a public safety agency" to bring about that dispatch, and, that the decision of how and what to dispatch in terms of response equipment involves the public safety agency. Also, reference to the "nearest" emergency services provider implies that the Mayday service will always and accurately know that. Until other developments succeed, "nearest" may not always be accurate.

- It is important that the customer understand the distinction between manual and automatic activation and how both are handled by the TSP.

- It is important that the customer understand what constitutes an emergency and how an "emergency" activation is processed in comparison to a "non-emergency" activation.

- In referencing emergency services, TSPs should avoid words that "simplify" and "instantly automate" the process—or, say things like "this is all you have to do." That kind of description builds customer expectation for consistency and accuracy that may not always exist. Materials should speak to the service as it is "designed" to work, or "normally" operate.

- A reference material section on service limitations should also address the relationship between the Mayday provider and public safety agencies. The latter is an essential communications link in a Mayday call flow—and, the efficacy of that link may affect the Mayday service level. Also, the limitation section should note that "contacting the closest PSAP" is based upon "best available information."

- Materials should mention that service is dependent on wireless communications, that wireless does not serve everywhere, and even where service exists it may be stopped or interrupted by various factors.

3. We felt no need now to get involved in making specific recommendations concerning customer subscription agreements. This will be worked out individually by the sellers of these services.

4. Similarly, although all the parties believe that the privacy of consumer information is a critical issue and should be protected, no action by NMRI seems necessary at this time.

VI. A Recommended Mayday Consortium

A. Summary

Along with the existing telematics service providers, new companies will continue to enter the market in years to come. As the key issues of NMRI have been raised and addressed, it has become clear that an entity capable of judging compliance with the developed standards and recommendations of NMRI needs to be created. We recommend creation of a non-profit public/private Mayday Consortium with a similar make-up to the NMRI membership. The Mayday Consortium we recommend will seek to ensure, on an on-going basis, that TSPs are aware of and comply with the guidelines established by it now and in the future. The consortium will give a TSP a "Seal of Approval" if it complies with the provisions suggested here and by the other Committees. This "Seal" could then allow various benefits to TSPs, including broad notification of public safety agencies of that status and access to the database of emergency contact information recommended previously.

B. Consortium Structure

We propose forming a consortium of private sector companies, such as the telematics service providers, and public stakeholders, such as APCO, NENA, NASNA, IACP, DOT, ACEP and other public response agencies. Private sector members will constitute 50% of the consortium and the remaining 50% will be from the public sector. Equipment suppliers, technical standard groups (such as SAE and IEEE), trade associations (such as CTIA or the Alliance of Automobile Manufacturers) and government advisory groups (like ITS America) could be invited to participate as advisors or associate members of the consortium. The Consortium would support itself with user fees on members and government grants.

Like NMRI, the focus of the consortium will be on issues raised by the dealings between its stakeholder members, or which affect multiple members, rather than those which are internal to them, or affect primarily or only them. And it should take all necessary steps to avoid duplication of effort by other bodies, whether or not they are members. In the technical standards area, the consortium should seek leadership from its expert members, and primarily perform a coordination and encouragement role, including and especially ensuring that standards which affect multiples of its members have their input.

Where a need for new standards within the scope of the consortium is identified, such work will be "farmed out" to existing standard setting organizations selected by a majority of the consortium members. Standard practices would be approved by the consortium, and then public comments/complaints would be invited, tracked and resolved in an open forum.

Before commencing, a detailed plan would be developed for the consortium, including a business model, bylaws, Board structure, membership and terms, and details of the other matters discussed here. Obviously, any member of the consortium would be free to state its disagreement with any proposed consortium decision, would not be bound by consortium decisions, and could resign its membership at any time.

C. Suggested Functions of the Consortium

1. The Consortium will be the accrediting body for TSPs, providing a "Seal of Approval." Develop specific requirements that TSPs must meet to receive certification (e.g. Meet advertising guidelines, properly train their call takers, operate a 24x7 call center)

2. It should review and approve the new training standard, review and approve TSP training programs developed by TSPs and training entities, and create a training module on Mayday, ACN and TSPs for PSAP trainers to use.

3. It will work with other parties to ensure the creation and maintenance of, and then determine access to, the data base and systems recommended above.

4. It should create a standard brochure for TSPs to give to Mayday subscribers about how the public response system works, where Mayday fits in it, and where certified TSPs fit.

5. Lead a public education campaign on how the public response system works, what 9-1-1 needs; how Mayday/ACN benefits the public, and the functions of these technologies and of certified TSPs.

6. Widely advertise certification of a TSP by the consortium to the public safety community and consumers.

7. Develop a process for consortium members to work with the wireless industry to minimize the number of "deadzones" in carrier networks.

8. Continue the consideration and resolution of issues raised in NMRI but not yet solved, and additional issues in the future which broadly concern or affect the stakeholder membership.

NMRI Participants

Jeffrey Green, Managing Director, **American Automobile Association**

Robert Ohm, Vice President -- Operations, **AAA Response**

Dr. Richard Hunt, **American College of Emergency Physicians;** Incoming President, **National Association of EMS Physicians;** Vice Chair, the **ComCARE Alliance**

Joseph Hanna, Immediate Past President, **Association of Public-safety Communications Officials, International (APCO)**

John Ramsey, Executive Director, **APCO**

David Bubb, Director, APCO Institute, **APCO**

Gary Wallace, Executive Director, Public Affairs, **ATX Technologies**

Robert Thompson, Director, Government Affairs, **ATX Technologies**

John Keller, Office of Special Projects, **California Highway Patrol**

Sue Wright, 9-1-1 Program Manager, **California Highway Patrol**

Dr. Howard Champion, Chair, **Coalition for American Trauma Care**

Mark Shonk, Denver Police Communications, **City and County of Denver**

Kathryn Condello, Vice President Industry Operations, **Cellular Telecommunications Industry Association (CTIA)**

Ruth Angel, ENP, **Freemont (Calif.) Police Department**

Jack Haviland, Safety Systems, **General Motors Corporation**

James Cheeks, ITS Standards Manager, **Institute of Transportation Engineers**

Jack Grant, Division Manager, Division of State and Provincial Police, **International Association of Chiefs of Police (IACP)**

Anthony Fague, **IACP, Security Industry Association (SIA)**

Mark Johnson, Staff Attorney, **Intelligent Transportation Society of America (ITSA)**

Paul Najarian, Senior Telecommunications Engineer, **ITSA**

Michael Ceglia, President, **MJC Thomas, Inc.**

Ken Keim, **Oregon Emergency Management; National Association of State Nine-one-one Administrators (NASNA)**

Robert Oenning, E9-1-1 Program Administrator, **State of Washington; NASNA**

Norman Forshee, 9-1-1 Coordinator, **St. Clair County (IL);** President, **National Emergency Number Association (NENA)**

Mark Adams, Executive Director, **NENA**

Robert Miller, Technical Issues Director, **NENA**

Robert Gojanovich, Manager, 9-1-1 Service Management, **Verizon;** Network Technical Committee Chair, **NENA**

James Goerke, Director, **Texas Commission On State Emergency Communications;** Southeastern Regional Vice President, **NENA**

Hiroshi Tsuda, Director ITS Research, **Nissan Research and Development**

Galen McGill, ITS Manager, **Oregon Department of Transportation**

Tim Dunn, ENP, Product Manager, Emergency Services, **SignalSoft Corporation**

Sadler Bridges, Director, Intelligent Vehicle Initiative, **Texas Transportation Institute;** Director, Public Safety Message Set Committee, **Society of Automotive Engineers**

Cedric Sims, **Texas Transportation Institute;** Consultant to Public Safety Message Set Committee, **Society of Automotive Engineers**

Steve Meer, Chief Technology Officer, **SCC Communications Corporation**

Darold Whitmer, 9-1-1 Solutions, **SCC Communications Corporation**

Lisa Dator, Director, State Government Relations, **SCC Communications Corporation**

Missy Foxman, Director, Industry Relations, **SCC Communications Corporation**

Patrick McCreary, Office of Justice Programs, **United States Department of Justice**

Douglas Funke, **Veridian Engineering**

Co-Sponsors

United States Department of Transportation

William Baker, ITS JPO Public Safety Coordinator
Dr. Jeffrey Michael, Director, EMS Programs, NHTSA
Dr. Art French, NHTSA
Louis Lombardo, Senior Physical Scientist, NHTSA

The ComCARE Alliance

K. Sue Hoyt, Chair
Marsha Scherr, Executive Director
David Aylward, Initiative manager
Jeffrey Hannah, Vice President
Steve Seitz, Outreach Coordinator
Ryan O'Connell, Outreach Coordinator
Patrick Halley, Staff Assistant

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