



Oregon Emergency Management 9-1-1 Program

July 23, 2012

REQUEST FOR INFORMATION

Next Generation 9-1-1 Products and Services



RCC Consultants, Inc.

Woodbridge, New Jersey

1 INTRODUCTION

The Oregon Military Department, Office of Emergency Management, 9-1-1 Section (OEM9-1-1) is assessing whether the use of an i3 system (as defined by the National Emergency Number Association) would provide improvements to the overall 9-1-1 infrastructure and position OEM 9-1-1 for accepting the anticipated payloads envisioned by the adopters of Next Generation 9-1-1.

The purpose of this Request for Information (RFI) is to help OEM 9-1-1 meet the original goals of the legislated initiative and, in particular, to assist OEM 9-1-1 staff to identify and assess the various vendor solutions available. We are using the RFI to gather additional information to help OEM 9-1-1 understand the capabilities of an i3 environment including all aspects of network, geo-based routing/ location information, and call taking solutions. We further are offering this RFI to identify qualified vendors who might be able to meet our future requirements.

While this RFI focuses on an i3 solution, OEM 9-1-1 remains open to alternative ideas and considerations. Respondents are encouraged to provide information about their Next Generation technologies or alternative methodologies that can help OEM 9-1-1 better understand the potential of IP based call handling, and assess whether solutions exist that might meet its needs.

OEM 9-1-1 further expects the information collected will assist in the production of a concise and balanced RFP process. To this end, the vendor community is encouraged to include observations regarding what elements a successful RFP would have. Include these observations within the response section "Observations/Comments" as described in the section "Response Format".

The OEM 9-1-1 is open to alternative ideas. Respondents are encouraged to provide information about alternatives that can help the OEM 9-1-1 better define its requirements and obtain a solution that meets its needs

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2 EXECUTIVE SUMMARY

The landscape of communications technologies is changing in a profound, fundamental manner. The long history of analog telephone services is drawing to a close bringing with it a change to a more agile, content rich network employing digital technology. To exemplify this transition, perhaps no greater barometer is required other than to look at recent changes in Oregon's telecommunications providers.

With its phone business in rapid decline and without the resources to invest in robust Internet capabilities, Qwest Communications International sold itself to a Louisiana company. Denver-based Qwest was the nation's third-largest phone company and the Northwest's biggest, serving Portland, Vancouver, and Seattle. Between debt and the fact it didn't have the lucrative cell phone business or high-speed Internet services that other major telecom company's offer, the decision to liquidate was made. The buyer, CenturyTel, already served rural areas, including large parts of central and coastal Oregon, under the brand CenturyLink which has carried over to the branded name post-acquisition.

However, the rush to abandon wireline services carried over to Verizon. Frontier Communications Corp. acquired phone lines in 14 states belonging to Verizon Communications Inc. Frontier, a Stamford-based phone company that focuses on small towns and rural areas, is taking over 4 million Verizon phone lines in a deal that will triple its size. The deal includes 300,000 phone lines in Oregon, where Verizon served Portland's suburbs and some outlying areas of the state. It is part of the ongoing consolidation in the phone industry that could have broad ramifications as the demise of traditional telephone service gains momentum.

These changes of providers point directly to the migration within the industry to internet based communications. As quoted on OregonLive.com, Madelyn Elder, president of the Communications Workers of America Local 7901 in Portland said, "It's all about broadband now. Dial tone is a thing of the past". Indeed analog dial tone is a thing of the past as witnessed by recent FCC hearings on establishing a date certain that today's analog TDM based telephone network will cease in much the same manner as with the move to digital television.

Given the clear indications regarding the migration of telecommunications to digital technology, the State of Oregon, through its Office of Emergency Management 9-1-1 program, has made the commitment to migrate the statewide 9-1-1 network to what is commonly referred to as Next Generation 9-1-1 (NG9-1-1).



3 OEM 9-1-1 OVERVIEW

3.1 SECTION MISSION STATEMENT

To provide administration of the legislative mandate for statewide Enhanced 9-1-1 telephone services that allow uniform, prompt, and efficient access to public and private safety services for the citizens of, and visitors to, the State of Oregon.

3.2 PROGRAM OVERVIEW

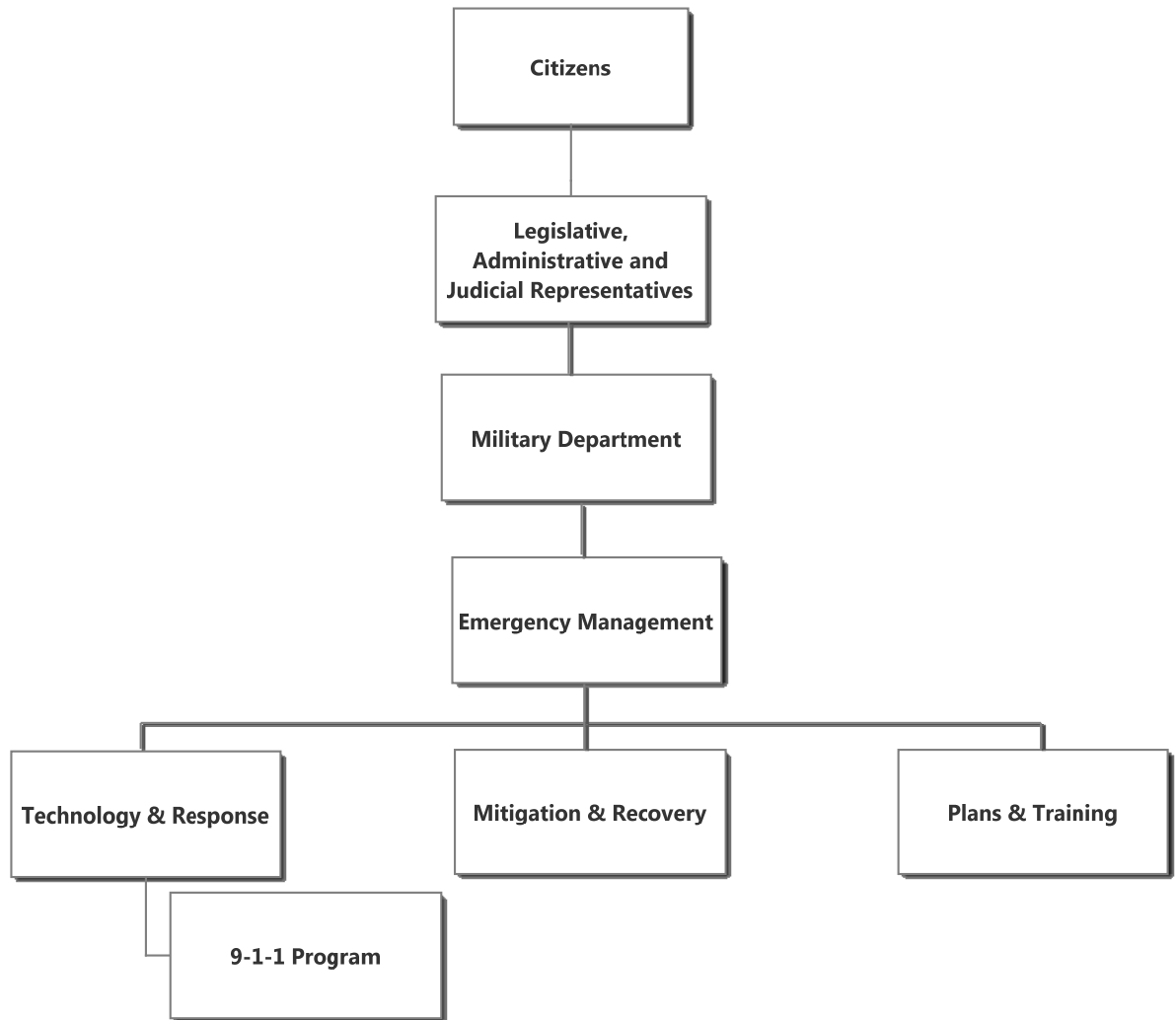
The 9-1-1 Program was established by the 1981 Oregon Legislature (ORS 403.100 – 403.380), its primary mission is to ensure the seamless operation of the statewide Enhanced 9-1-1 system. The program is responsible for the continual coordination and management of the network necessary to deliver 9-1-1 calls, the customer premise equipment (CPE) used by the Public Safety Answering Points (PSAP) to process those calls, as well as consulting and assisting local governments with the challenges faced in the delivery of and participation in the statewide enhanced 9-1-1 emergency reporting system.

The Oregon 911 Program is part of the Oregon Office of Emergency Management. The Oregon Office of Emergency Management is under the authority of the Oregon Military Department by Legislative action.



The state of Oregon covers 98,381 square miles (#9 U.S.) and has a population of 3,871,859 (2010 census, #27 U.S.). Bordered by the states of Washington, Idaho, Nevada and California, the state is situated along the Pacific Coast and extends inland across the Cascade Mountain Range to high desert in the east. The majority of population exist within the Willamette Valley along the northern section of I-5 from Eugene to Portland.

Oregon has long been a leader in the field of 9-1-1 services; first having a statewide Basic 9-1-1 network and then in the mid-1990’s enacting legislation and funding for a statewide Enhanced 9-1-1 system. In a cooperative environment with local Public Safety Answering Points (PSAP) OEM 9-1-1 has embarked upon the effort to once again migrate the statewide 9-1-1 system to an IP based 9-1-1 network following the standards and processes as defined by the National Emergency Number Association (NENA), Association of Public Safety Communications Officers (APCO), and other pertinent standard setting bodies. The authority to conduct the business of 9-1-1 comes from the following structure:



OEM 9-1-1 intends to replace its current Enhanced 9-1-1 system with an i3 solution providing Next Generation 9-1-1 services according to NENA Next Generation standards. Through this RFI, OEM 9-1-1 is assessing available Next Generation solutions that will support the overall 9-1-1 infrastructure and position the State to accept current and anticipated payloads envisioned by Next Generation 9-1-1. OEM 9-1-1 seeks a total solution vendor who shall transition to a cutting edge IP-enabled, Next Generation platform. The Next Generation 9-1-1 vendor and the network, applications, and appliances shall be capable of providing both Next Generation 9-1-1 services and accommodating traditional Enhanced 9-1-1 services during the transition period to a fully functioning Next Generation 9-1-1 solution. The network shall interconnect each PSAP, data centers, the PSTN, and any other designated location. Additionally, the network shall possess the highest degree of resiliency, service availability, high speed transport, high bandwidth, and high system availability.

As used herein the following terms apply:

Alternate Routing: The capability of routing 9-1-1 calls to a designated alternate location(s) if all 9-1-1 trunks are busy or out of service. May be activated upon request or automatically, if detectable, when 9-1-1 equipment fails or the PSAP itself is disabled.

Applications and Appliances: the hardware and software required for 9-1-1 call and payload acceptance, processing, and delivery to a PSAP.

Attendant Position: the CPE at which calls are answered and responded to by the telecommunicator.

Automatic Location Identification (ALI): an enhanced 9-1-1 service capability that allows for the automatic display of information relating to the geographical location of the communication device used to place a 9-1-1 call.

Automatic Number Identification (ANI): an enhanced 9-1-1 service capability that allows for the automatic display of the telephone number used to place or route a 9-1-1 call.

Border Control Function (BCF): provides a secure entry into the ESInet for emergency calls presented to the network. The BCF incorporates firewall, admission control, and may include anchoring of session and media as well as other security mechanisms to prevent deliberate, malicious attacks on PSAPs or other entities connected to the ESInet.



Call: a session established by signaling with two-way real time media and involves a human making a request for help. Sometimes it is referred to as a “voice call”, “video call” or “text call” when specific media is of primary importance. The term “non-human-initiated call” refers to a one-time notification or series of data exchanges established by signaling with, at most, one-way media and typically does not involve a human at the “calling” end. The term “call” can also be used to refer to either a “Voice Call”, “Video Call”, “Text Call” or “Data-only call”, since they are handled the same way through most of Next Generation 9-1-1. It is an element of current and anticipated 9-1-1 *payload*.

Call delivery: The capability to route a 9-1-1 call for delivery to the designated PSAP.

Call Processing: the system and process that permits a PSAP to receive, answer, and transfer a 9-1-1 call and other current and anticipated payload.

Call Taker: an agent of a PSAP who answers emergency calls.

Communication Service Provider: an entity that provides communication services to a subscriber or end user.

Communication Services: includes any of the following: (a) the transmission, conveyance or routing of real-time, two-way voice communications to a point or between or among points by or through any electronic, radio, satellite, cable, optical, microwave, wireline, wireless, or other medium or method, regardless of the protocol used; (b) the ability to provide two-way voice communication on the public switched network; (c) wireless enhanced 9-1-1 service; (d) wireline enhanced 9-1-1 service; (e) interconnected VoIP provider service as defined by FCC regulations; (f) IP-enabled service; or (g) prepaid wireless service.

Customer Premises Equipment (CPE): Communications or terminal equipment located in the customer’s facilities – terminal equipment at a PSAP.

Emergency Call Routing Function (ECRF): A functional element in an ESInet which is a LoST protocol server where location information (either civic address or geo-coordinates) and a Service URN serves as input to a mapping function that returns a URI used to route an emergency call toward the appropriate PSAP for the caller’s location or towards a responder agency.



Emergency Services Internet Protocol Network or ESInet: a managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national, and international levels to form an IP based inter-network (network of networks).

End User: a person who uses communication services.

Enhanced 9-1-1 Network Features: the components of Enhanced 9-1-1 service that provide selective routing, automatic number identification, and automatic location identification.

Enhanced 9-1-1 Service Provider: any entity that provides one or more of the following 9-1-1 elements: network, database, or PSAP customer premises equipment.

Enhanced 9-1-1 Service: a service consisting of communication network, database, and equipment features provided for subscribers or end users of communication services enabling such subscribers or end users to reach a PSAP by dialing the digits 9-1-1, or by other means approved by the department, that directs calls to appropriate PSAPs based on selective routing and provides the capability for automatic number identification and automatic location identification.

Enhanced 9-1-1 Systems: a distinct entity or geographical segment in which enhanced 9-1-1 service is provided, consisting of network routing elements serving as a control office and trunking connecting all central offices within a geographical segment, and including PSAPs and network used to deliver location data to PSAPs from a data base.

FCC: the Federal Communications Commission.

Functional Element: major process, appliance, or application including network bandwidth and bandwidth support.

Geographic Information Systems (GIS): A computer software system that enables one to visualize geographic aspects of a body of data. It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It has the ability to query and analyze data in order to receive the results in the form of a map. It also can be used to graphically display coordinates on a map i.e. Latitude/Longitude from a wireless 9-1-1 call.



Hosted: a PSAP whose CPE function is provided by one or more data centers with only the 9-1-1 call taker workstations and ESInet connectivity devices located within the PSAP. The “backroom” equipment is remote from the PSAP but the equivalent functionality of a standalone installation is maintained.

IP-enabled Service: a service, device, or application which makes use of Internet Protocol, or IP, and is capable of entering the digits 9-1-1, or by other means as approved OEM9-1-1, for the purposes of interconnecting users to the 9-1-1 system including, but not limited to, voice over IP and other services, devices, or applications provided through or using wireline, cable, wireless, or satellite facilities or any other facility that may be provided in the future.

Legacy Gateway: a signaling and media interconnection point between callers in legacy wireline/wireless originating networks and the i3 architecture, so that i3 PSAPs are able to receive emergency calls from such legacy networks.

Legacy Network Gateway or LNG: refer to Legacy Gateway

Legacy PSAP Gateway (LPG): an i3 functional element that supports the interconnection of the ESInet with legacy PSAPs.

Legacy System: the existing analog-based enhanced 9-1-1 system.

Location Information Server (LIS): is a functional entity that provides locations of endpoints in the ESInet. A LIS can provide Location-by-Reference, or Location-by-Value, and, if the latter, in geo or civic forms. A LIS can be queried by an endpoint for its own location, or by another entity for the location of an endpoint. In either case, the LIS receives a unique identifier that represents the endpoint, for example an IP address, circuit-ID or MAC address, and returns the location (value or reference) associated with that identifier. The LIS is also the entity that provides the dereferencing service, exchanging a location reference for a location value.

Location to Service Translation (LoST) Protocol: a protocol that takes location information and a Service URN and returns a URI. Used generally for location-based call routing. In Next Generation 9-1-1, it is used as the protocol for the ECRF and LVF.

Location Validation: refers to the action of ensuring that a civic address can be used to discern a route (for the call for service) to the correct PSAP.

Location Validation Function (LVF): function that provides sufficient location-based information to a PSAP that allows a 9-1-1 call taker to dispatch emergency responders to a 9-1-1 call scene. The location information is provided by civic based addresses or latitude/longitude data.



National Emergency Number Association (NENA): is a not-for-profit corporation established in 1982 to further the goal of “One Nation-One Number.” NENA is a networking source and promotes research, planning, and training. NENA strives to educate, set standards, and provide certification programs, legislative representation, and technical assistance for implementing and managing 9-1-1 systems.

NENA Next Generation 9-1-1 Standards for i3: standards and requirements, including the NENA Security for Next Generation 9-1-1 Standard and the NENA Next Generation Technical Requirements Documents, now available or as may become available in the future .

Next Generation 9-1-1: an enhanced 9-1-1 system that incorporates the handling of all 9-1-1 calls and messages, including those using IP-enabled services or other advanced communications technologies in the infrastructure of the 9-1-1 system itself.

Network Components: any software or hardware for a control switch, other switch modification, trunking or any components of a computer storage system or database used for selective routing of 9-1-1 calls, automatic number identification, and automatic location identification (including a PSAP).

OEM9-1-1: Oregon 911 Program, part of the Oregon Office of Emergency Management. The Oregon Office of Emergency Management is under the authority of the Oregon Military Department.

Payload: Any multi-media packet that presents to the network as a call, or an equivalent, including without limitation, real-time communication and non-real time communication, voice, text, video, images, alerts, alarms, graphics, or telematics.

Primary PSAP: a PSAP equipped with ALI and ANI displays, and is the first point of reception of a 9-1-1 call. It serves the municipality in which it is located.

Public Safety Answering Point (PSAP): a facility assigned the responsibility of receiving 9-1-1 calls and, as appropriate, directly dispatching emergency response services or transferring or relaying emergency 9-1-1 calls to other public or private safety agencies or other PSAPs.

Public Safety Department: a functional division of a municipality or a state that provides fire fighting, law enforcement, ambulance, medical or other emergency services.

Public Switched Telephone Network (PSTN): the network of equipment, lines, and controls assembled to establish communication paths between calling and called parties in North America.



Request for Information (RFI): the mechanism used to gather information to assist in the development of a potential procurement by inviting potential bidders or other interested parties to provide technical and business advice concerning industry standards, practice, or other information which is relevant to the type of commodities or services, or both, that OEM 9-1-1 seeks to procure.

Request for Proposal (RFP): the mechanism used to communicate procurement specifications and to request responses from interested respondents.

Secondary PSAP: a PSAP equipped with automatic number identification and automatic location identification displays. It receives 9-1-1 calls only when they are transferred from the primary PSAP or on an alternative routing basis when calls cannot be completed to the primary PSAP.

Selective Routing: the method to direct 9-1-1 calls to the appropriate PSAP using a call routing database derived from the geographical location from which the call originated.

Spatial: Relating to, occupying, or having the character of space. Geographic Information Systems store spatial data in regional databases.

Standalone: a PSAP whose CPE is entirely housed within the facility. All functions of call acceptance from the ESInet are contained within the PSAP premises, except the signaling sent to the applications and appliances.



4.1 PARTICIPATION IN THIS RFI

The purpose of this RFI is to assist OEM 9-1-1 staff in identifying the various vendor solutions available and gathering any information to help assess the capabilities of a Next Generation (i3) environment, including all aspects of network, database, geo-based routing, caller location information (applications and appliances), call taking solutions, CPE, support services, and any other services required to meet the acceptance, processing, and delivery of current and anticipated Next Generation 9-1-1 payloads.

While this RFI focuses on a Next Generation solution, OEM 9-1-1 remains open to alternative ideas and considerations. Respondents are encouraged to provide information about their Next Generation technologies and all alternative methodologies to inform OEM 9-1-1 of all potential IP-based call handling solutions. This information is vital for the assessment of which solutions will meet the future needs of the Oregon Next Generation 9-1-1 system.

The RFI process seeks responses from any and all respondents who offer partial or total solutions in order to assess all possible technologies or alternative methodologies.

It is not our intention to design or define the applications and appliances required of a solution. Rather, responses to this section will assist OEM 9-1-1 in identifying all available vendor solutions and system features/components to be included in a future procurement document(s).

This RFI is issued solely for information and planning purposes and shall not constitute a solicitation. Responses to this notice shall not constitute offers and shall not be accepted by OEM 9-1-1 to form a binding contract. Respondents are solely responsible for all expenses associated with their response and any associated travel or other presentation expenses, as applicable, to this RFI.

In-Person Discussions

Responders offering a full-service¹ solution are invited to meet with OEM 9-1-1 following the submission date of this RFI. This meeting is intended to allow the free flow of information regarding this project and offer the opportunity for responders to demonstrate their technologies in NG9-1-1. Responders fulfilling the requirement of a full-service offering may, at their discretion, bring any potential sub-contractor(s) they may have a business relationship with and who would reasonably be expected to partner for a formal RFP response.

¹ A Full-Service responder is often referred to as the Prime Vendor and will be proposing all functional elements of their solution regardless of the source of any particular element.



Responders who are likely to provide a full-service response should contact OEM 9-1-1 to arrange a time for this meeting. All meetings will be held at the OEM 9-1-1 facility located in Salem, Oregon. Responders may make reservations anytime until the closing date of this RFI. To arrange a meeting contact:

Theresa Connell
 911 Program Analyst
 Technology & Response Services
 Oregon Emergency Management
 PO Box 14370
 Salem, OR 97309
 PH: 503-378-2911 Ext: 22230
Theresa.Connell@state.or.us

4.2 RFI SCHEDULE

RFI key dates are the following:

July 23, 2012	RFI Published
August 24, 2012	Deadline Submission of Meeting Request
September 5, 2012	Submission Deadline
September 10-14, 2012	Week Held for Meetings

The deadline for delivery of responses to this RFI is 5:00 PM, September 5, 2012. Vendors should note that delivery is to a USPS Post Office Box and therefore some delivery services will not be available for use.

Responses to this RFI should be directed to:

Theresa Connell
 911 Program Analyst
 Technology & Response Services
 Oregon Emergency Management
 PO Box 14370
 Salem, OR 97309

For Submissions NOT using USPS for delivery:
 3225 State St. Rm 115
 Salem, OR 97301

PH: 503-378-2911 Ext: 22230
Theresa.Connell@state.or.us

Electronic submissions (under 5MB) are permissible.



4.3 RFI RELATED QUESTIONS / CLARIFICATIONS / SUBMISSION

All questions related to this RFI should be directed to the appropriate individual by category:

Administrative/General Questions;

Theresa Connell
911 Program Analyst
Technology & Response Services
Oregon Emergency Management
PO Box 14370
Salem, OR 97309
PH: 503-378-2911 Ext: 22230
Theresa.Connell@state.or.us

Technical Questions/Issues;

Tony Busam
RCC Consultants, Inc.
Public Safety Consultant
PH: 503-566-5902
tbusam@rcc.com

4.4 RFI TERMS & CONDITIONS

OEM 9-1-1 is issuing this RFI as an *informal* document. This designation infers that the vendor community is not bound to respond to this instrument with any fear of unequal treatment regarding any subsequent Request for Proposal (RFP) that may be issued in the future. Rather, it is the intent of OEM 9-1-1 to request information from the commercial community regarding these technologies in order to assist us in understanding the commercial concerns, offer input, and receive suggestions how to best create a potential RFP that has the attributes of a fair and equal offering. Further, the request for fiscal estimates is made to assure adequate funding levels should an RFP for an NG9-1-1 solution be published.

OEM 9-1-1 certifies that this is an informal RFI and does not constitute nor imply any further acquisition effort by the state. Vendors wishing to reply do so understanding their response is for the use and understanding of the available technologies being offered in today's marketplace.



5 HIGH LEVEL BUSINESS REQUIRMENTS

The State of Oregon operates the 9-1-1 program on a “state oversight, local control” basis. While OEM 9-1-1 directly pays for services a substantial amount of funding is distributed for operational purposes to local PSAPs. In this regard, the scope of the project is statewide and includes the following active PSAPs (Busy hour is calculated as 3.6% above average hour, Workstations abbreviated as Wkst):

PSAP	Busy Hour Avg. Hourly @3.6%±	277 9-1-1 Wkst
Baker County 9-1-1 Dispatch	3.82	3
Corvallis Regional Communications	8.96	5
CCOM	50.62	14
LOCOM	8.71	6
Astoria 9-1-1	4.97	3
South Clatsop Seaside P D	2.66	3
Columbia 9-1-1 Communications	8.68	5
Coos Bay Police Department	4.21	3
Coos County Sheriff's Office	5.22	4
Prineville Police Department	3.24	3
Brookings Police Department	2.27	2
Curry County Sheriff's Office	2.27	2
Deschutes County 9-1-1	22.68	13
Douglas County 9-1-1 District	20.05	6
TRICOM	0.90	3
John Day Police Department	0.76	2
Harney County Sheriff's Office	0.65	2
Hood River County Dispatch	4.18	4
ECSO	37.66	13
Jefferson County Sheriff's Office	3.74	3
Warm Springs Police Department	1.08	2
Josephine County 9-1-1 Agency	15.55	5
Klamath County 9-1-1	34.81	4
Lake County 9-1-1	2.09	2
Central Lane Communications	60.70	15
South Lane 9-1-1 / Cottage Grove	2.88	2
West Lane 9-1-1 / Florence	1.19	3
Lincoln City Police Department	2.70	3
LINCOM	5.83	4
Toledo Police Department	0.61	2



Linn County Sheriff's Office	23.15	5
Malheur County Sheriff's Office	2.45	3
Ontario Police Department	2.23	3
NORCOM	10.66	5
SCCC	5.58	3
WVCC	52.13	14
Morrow County Sheriff's Office	2.27	5
BOEC	159.41	51
Tillamook County Communications	6.80	3
Hermiston Police Department	4.18	2
Milton-Freewater P D	0.94	2
Umatilla County Sheriff's Office	8.75	4
Union County Communications	3.82	3
Wallowa County Sheriff's Office	0.76	2
Wasco County Communications	4.50	4
WCCCA	52.45	20
Newberg / Dundee Communications	19.44	3
YCOM	11.84	4

When contemplating configurations vendors should keep in mind connections to the ESInet and possibly some elements of CPE will be required at non-PSAP locations of OEM 9-1-1 and the State of Oregon Training Academy.



5.1 OVERVIEW OF FUNCTIONAL REQUIREMENTS

Respondents shall describe all solutions for each operational item set forth below:

5.2 PROCESSING OF VOICE AND MULTIMEDIA PAYLOADS

Please describe your product, applications, and appliances' ability to process various existing and anticipated payloads from NG9-1-1 calls.

5.3 STANDALONE AND HOSTED PSAP SOLUTIONS

OEM 9-1-1 anticipates that the Next Generation 9-1-1 system will contain both standalone and hosted PSAPs. The difference between the two shall be the size and call load of the PSAPs contained in the section above. Please identify any differences in your solution that may exist for standalone and hosted PSAPs. In addition, describe how your CPE offering will handle "interim text" solutions as currently being offered. Should this function be carried through any of the Applications and Appliances specified herein, notate their function(s) within those relevant sections.

5.4 EVENT/ADMINISTRATIVE REPORTS

Please describe how your Next Generation 9-1-1 solution produces standard reports regarding individual calls, collection of calls, summary of call loads, and other pertinent information gathered by the CPE. Additionally, please provide examples of event and administrative reports.

5.5 MAPPING

Please describe your solution's mapping display capabilities and requirements for GIS data. Specifically, address Phase I, Phase II wireless calls and your solution's capabilities to manage the entire spectrum of current and anticipated payload. Please describe any features in your solution that can provide PSAPs with decision making information, such as tracking rebids and clearly identifying the call or payload. Additionally, please describe any interfaces of your mapping product for Pictometry and CAD.

5.6 GIS AND DATA NORMALIZATION SERVICES

It is recognized that GIS is at the heart of a successful deployment of NG9-1-1 and the OEM 9-1-1 wishes to obtain the best input regarding these processes from the vendor community.

- Geographic data linked to master street and address lists based on the FGDC standard for thoroughfare addresses. What processing and/or reformatting might be needed to use those datasets with the vendor's system?



- How will GIS datasets be migrated into the system, how will they be QA'd and how will they be maintained?
- In the vendor's system, what is the role of geocoding – what are the end products, what is the technology or software, what are the input dataset requirements?
- What are the roles and responsibilities for maintenance of geocoding data resources? How is local input handled? How are new addresses validated? Assuming the state GIS program has a role in maintenance of geocoding data, what process will there be for identifying problems and remedying them?
- Can geocoding in the production environment be set up to eliminate any possible errors based on parsing, soundex, etc.?
- How will the system assure compliance with GIS standards by both service providers and local officials in terms of address format, spelling, etc.
- Please describe your approach to maintaining GIS data intended for use within the Next Generation 9-1-1 environment. Please state if your response is part of another section within the context of this RFI.
- How does your system handle address point data? Is it different than geocoding? Do you have to have both address points and address ranges?
- How does the mapping of emergency service zones fit into the design of your system.

5.7 BOUNDARIES DATA UPDATES

Please explain and describe the process used to update the ALI data. The ALI database shall provide the tools to perform data updates required to accommodate changes in relative boundaries for PSAP and cell site/sectors

6 NG9-1-1 REQUIREMENTS

6.1 APPLICATIONS AND APPLIANCES

6.1.1 Legacy Gateway

While the legacy gateway will exist outside of the ESInet, there may be a period of time where this service may be offered by OEM 9-1-1 under a Legacy Network Gateway. Respondents are encouraged to identify an effective and efficient solution to the provisioning of legacy gateway services for providers and a description of your legacy gateway services.

6.1.2 Legacy Network Gateway

Calls in legacy origination networks undergo conversion to IP formats for delivery into the ESInet. The LNG attaches sufficient information to the call, such as location and callback number, for handling within the ESInet.



Describe your solution for the LNG within the ESInet environment.

6.1.3 Legacy PSAP Gateway

The Next Generation 9-1-1 solution shall have the capability of connecting to the existing legacy Enhanced 9-1-1 system during the transition to a complete Next Generation 9-1-1 system. LPG plays a role in the delivery of emergency calls that traverse an i3 ESInet to get to a legacy PSAP, as well as in the transfer and alternate routing of emergency calls between legacy PSAPs and i3 PSAPs. The Legacy PSAP Gateway supports an IP (i.e., Session Initiated Protocol) interface towards the ESInet on one side, and a traditional Multi-Frequency (MF) or Enhanced MF interface (comparable to the interface between a traditional Selective Router and a legacy PSAP) on the other. The LPG also includes an ALI interface (as defined in NENA 04-001 or NENA 04-005) which can accept an ALI query from the legacy PSAP, and respond with location information that is formatted according to the ALI interface supported by the PSAP. If an emergency call routed via the ESInet contains a location reference, the LPG must support a de-referencing interface to a LIS or LNG or ingress LSRG to obtain the location information that will be returned to the legacy PSAP in the ALI response. To populate non-location information in the ALI response, the LPG may need to support an interface to a call information database (CIDB). The LPG may also support an interface to an ECRF which it can use to determine the transfer-to party under certain Selective Transfer scenarios.

The LPG is expected to provide special processing of the information received in incoming call setup signaling to facilitate call delivery to the legacy PSAP, to assist legacy PSAPs in obtaining callback and location information, and to support feature functionality that is currently available to legacy PSAPs, such as call transfer and requests for alternate routing.

Describe your solution for the LPG within the PSAP environment.

6.1.4 Border Control Function (BCF)

Please describe your solution for the BCF including all required products and devices and any potential special deployment issues, challenges, or limitations for your solution. Additionally, respondents may specify security parameters that extend through the ESInet to the point of demarcation within the PSAP.

6.1.5 Event Recording

Event recording differs in that event recording records information about the call or payload. This includes, but not limited to, hold times, where a payload entered the NG9-1-1 system, system transit times, how long it took to answer a payload or call and other timings not associated with DLR recording. Data collected by this function shall be available in report format.



Describe your solution for event recording and reporting.

6.1.6 Location Information Server

As with the legacy gateway, the location information server function may not be immediately available from the communications service providers at the inception of Next Generation 9-1-1. If the location information server is not available, it may be provided by OEM 9-1-1 and made available to the communications service providers outside of the ESInet proper. Please describe how this may best provide an interim service. Ultimately, the location information server shall be the responsibility of the communications service providers, but OEM 9-1-1 seeks best practices from respondents to maximize success and efficiencies during any interim period.

6.1.7 DLR Recorders (payload recording)

Please describe your solution to record call or payloads. Describe your recording solution for hosted and standalone PSAPs. Describe how your recording solution is backed up and monitored. Please describe redundancy capabilities of the hosted recorders located at the two Data Centers. Additionally, please describe the expansion capabilities of your recording solution. PSAPs intend to keep 12 months of recordings.

6.1.8 Emergency Call Routing Function

Call delivery is essential to the emergency call routing function. Clarity of this function is essential for OEM 9-1-1 to fully understand any respondent's potential solution. Please describe the functionality of your solution and its relationship to other applicable location-based solutions. Additionally, please describe your protocols employed, application compliance standards and minimum requirement for GIS data.

6.1.9 Emergency Services Routing Proxy

The emergency service routing proxy is essential for direct call delivery to an appropriate PSAP based upon location and routing rules. Please describe your solution using the Location to Service Translation (LoST) protocol and how it interacts with the overall operation of the emergency service routing proxy. Additionally, please describe your process for all functions related to the emergency service routing proxy and identify any outstanding issues, challenges, or limitations your solution may have with this process.



6.1.10 Location Validation Function

Please describe your solution's interaction with and capabilities for location validation functions of civic based addresses and latitude/longitude data. Additionally, please identify any issues, challenges, or limitations of your solution with respect to call location validation.

6.1.11 Rules Based Routing Proxy

Rule-based routing is a benefit of any Next Generation 9-1-1 system because of its ability to route calls based upon various parameters. Please describe how your solution's rule-based routing interfaces with other components of a Next Generation 9-1-1 system. Please identify the interface used by PSAPs to establish these rules and any conditions that may limit its function.

6.1.12 PSAP Demarcation Device

Please describe any specialized equipment that your solution would require to be located within any PSAP located within the State. Additionally, please identify any equipment that your solution would require to be deployed in either a standalone or hosted PSAP environment.

6.1.13 Scalability

Please describe the systems' scalability of the proposed system and how it will support statewide, regional or local implementations for the payloads delivered.

6.1.14 Improved Quality of Service

Please explain how the proposed system will contribute to the reduction of call set-up times, transfer of calls, and transfer of calls to the secondary PSAPs (ring down centers), dropped calls, and callback requirements. Specifically, OEM 9-1-1 expects that call setup times will be improved where possible.

6.1.15 Connectivity to Multiple Carriers and ALI Databases

Please describe how the system will interface simultaneously with multiple providers and multiple remote ALI databases.

7 GIS DATA REQUIREMENTS

Please provide all requirements for GIS data and, if available, the data schema used by your solution. Please be as specific and detailed to individual applications as possible.



8 NETWORK AND NETWORK SERVICES

The successful Next Generation 9-1-1 vendor will be required to work cooperatively with OEM 9-1-1 and any appropriate state agencies to utilize and monitor an IP-based network interconnecting all elements of the network and authorized PSAPs including two data centers. The current plans include a blend of both public and private facilities. Please describe your ability to utilize and monitor such a network within the State. In addition to managing existing network connectivity, the NG9-1-1 vendor may be required to operate a Network Operations Center. Please describe your current capabilities for performing this function and explain how you would utilize this privately managed network. Additionally, please describe how you conduct network performance auditing and what reports would you provide OEM9-1-1.

When considering the makeup of the Next Generation 9-1-1 network, respondents should note that there are two possible models being considered by OEM 9-1-1 for deployment:

- The Next Generation 9-1-1 Contractor acquires and is responsible for all network activity.
- The Contractor manages network facilities through a blend of both public and private facilities.

8.1 REDUNDANCY AND DIVERSITY

Please explain your philosophy for providing for diverse and redundant connectivity between the proposed system equipment and network resources.

8.2 FUNCTIONAL ELEMENT RECORDING

OEM 9-1-1 will require the ability to receive reports from the NG9-1-1 Contractor regarding the effective and efficient delivery of payloads from the point of the BCF through the delivery of payloads to the PSAP. Please describe how your solution records events of transit and processing and offer an example of a management report if possible.



9 DATA CENTERS

OEM9-1-1's preliminary functional design for its NG 9-1-1 system requires two data centers. Process continuity is a significant concern for any 9-1-1 system. If one center becomes unavailable, PSAP operations shall function off the remaining data center(s)². It is paramount to provide a highly reliable infrastructure for Next Generation 9-1-1 operations, to minimize any service disruptions. Information security is also a major concern, and each data center shall offer a secure environment which minimizes security breaches. Each data center will provide the following: data center-based Next Generation 9-1-1 appliances and applications directly to the State's citizens and visitors; and hosted applications for non-standalone PSAPs.

To accomplish this goal, the State will operate and maintain one data center and a third tier 4 data center will be provided by the Next Generation 9-1-1 Contractor. Please describe your approach to and capability of providing a data center that meets all of the requirements of this subsection. Additionally, please describe all applicable standards your solution would follow in operating the data center.

9.1 SECURITY AND THREAT PREVENTION CAPABILITES

Please describe your security procedures and policies for deploying and updating virus prevention, patch management, antivirus, worm, spyware, malware, other malicious software, and any additional PSAP or system threats.

Call taker equipment (CPE) located within a PSAP is that which is used to receive 9-1-1 calls from the public, interact with onsite technologies such as CAD and perform functions common to that represented by definitions of NENA. For the purposes of this RFI the vendor is encouraged to consider this request to include the ability to process various payloads from the public as may be presented by multi-media devices referred to herein as "payload".

All descriptions of functionality should be comprehensive enough to allow review with an easy understanding of how the various functions operate from a call taker perspective.

10 CUSTOMER PREMISES EQUIPMENT (CPE)

OEM 9-1-1 understands the advancement of technologies inherent in NG9-1-1 allow for a more robust, secure method of payload delivery. Describe your solution for PSAP CPE using the following outlines of purpose.

² The current design calls for the entire State to operate from a single Data Center during extraordinary events.



10.1 STANDALONE

The term “Standalone” in context of this RFI is used to describe CPE that is entirely housed within a PSAP. All functions of call acceptance from the Emergency Services Internet Protocol Network (ESInet) are contained within the premise other than that signaling sent to the applications and appliances located within the data centers as described under the section “Applications and Appliances suitable for i3 deployment”.

10.2 HOSTED

The term “Hosted” in context of this RFI is used to describe CPE that is controlled from the data centers with only the call taker workstations and ESInet connectivity devices located within the PSAP. The legacy “backroom” equivalent equipment is remote from the PSAP but the equivalent functionality of a standalone installation is maintained, hence the term Hosted.

10.3 MAPPING

Describe your product’s mapping display capabilities and requirements for GIS data. Special attention should be directed toward Phase II wireless calls but should reflect the entire spectrum of potential payloads and their solutions available within your product.

10.4 EVENT/ADMINISTRATIVE REPORTS

Please describe, and provide examples, of standard reports generated by the CPE regarding individual calls, collection of calls, summary of call loads and other pertinent information gathered by the CPE. Identify any differences that may exist between standalone and hosted solutions.

11 PAYLOAD RECORDING EQUIPMENT

With ever-changing multimedia payloads, recording capabilities must expand beyond voice calls. The ability to record and playback events becomes increasingly important with the complexity of calls. Please describe how your current and anticipated solution records calls including the ability to instantly recall a recent event and the archival abilities of your solution. Respondents having these solutions are reminded that OEM 9-1-1 anticipates CPE to be deployed both as standalone and hosted. Please describe the differences, if any, that these deployments create for your solution.



12 LEGAL REQUIREMENTS

Responders are encouraged to identify any issues specific to NG9-1-1 that have legal implications and to describe what remedies are suggested. Be as specific as possible to allow future consideration of these issues should a formal RFP be issued. If no specific legal requirements are required please indicate such.

13 OPTIONAL INFORMATION

Responders are offered the opportunity to make any observations or offer other products and services not otherwise contained within the RFI. This is an opportunity to offer suggestions regarding the potential issuance of an RFP in fair and unbiased manner. Responders are encouraged to use this section at will.

14 PRICING AND ACQUISITION OPTIONS

OEM 9-1-1 is interested in obtaining fiscal information regarding the acquisition of an NG9-1-1 solution as identified within this RFI for project planning purposes only.

If you choose to respond to this section please use only Manufacturer Suggested Retail Pricing with no discounts or projected negotiated pricing. Responders offering less than a Prime Vendor response are encouraged to offer pricing under these same terms.

Based upon the proposed configuration, please indicate pricing in both non-recurring and recurring format. If your company offers any options such as extended financing, lease or lease/option please indicate.

When offering pricing, keep in mind OEM 9-1-1 will expect to place full responsibility on any vendor awarded a contract through a legal RFP process in the future. This is an informal RFI and no form of solicitation or offer to purchase is made nor should it be inferred.

15 DEPLOYMENT MODEL

Responders who wish to provide samples of project management and deployment are encouraged to provide this information as either custom text or prepackaged material. An estimate regarding the amount of time required for a full deployment is appreciated as are any observations regarding impediments to a smooth transition.



16 RESPONSE FORMAT

The following headers are offered as an example of an appropriate response format.

Vendor	
Technology	

- a. Cover Letter (include name of primary contact and information)
- b. Statement of Adherence to Published Standards:
- c. Noted Exception(s) to RFI:
- d. Body of RFI Sections 6 through 16 numbered specifically to section:
- e. Voluntary Observations/Comments:
- f. Supportive or Supplemental Documentation:



RESPONDENT MATERIALS -- (APPENDIX -- A)

