Office of Utilities Regulation

Development of Policy Recommendations

On

Enhanced Access to Emergency Services in Jamaica

A Review of Existing Conditions & Preliminary Proposals

Consultation Document

OUR

OFFICE OF UTILITIES REGULATION

August 2018

BACKGROUND AND OBJECTIVES

The Office of Utilities Regulation (the OUR) recognises essential distinctions, in both policy and practice, between localized day-to-day incidents requiring immediate and speedy assistance in relation to public safety concerns of fire prevention/mitigation, law enforcement, air-sea rescue and primary emergency medical response, and those complex incidents or widespread disasters that result in serious disruptions in the functioning of society as a whole, and that in most countries, the concept of "emergency services", in practice, typically relates to the former.

The International Telecommunications Union (ITU) defines an emergency call as: a call requesting emergency services—a caller is provided a fast and easy means of giving information about an emergency situation to an intermediary emergency call handling agency. The call will be routed to the appropriate emergency service provider (e.g., the Fire Brigade, Police, or an ambulance service which is a major entry point to the public and private hospital system) by the call handling agent.

In Jamaica, these emergency calls are made by dialling one of the 3-digit emergency numbers: 110, 112, 911 and 119. The use of 110, which is being replaced by 911 and 112, will be discontinued in the near future. The 119 Emergency number traditionally provides for direct calling to the police in cases of exclusive law enforcement emergencies.

It is well acknowledged that the efficiency, reliability and availability of emergency service access are of paramount importance to public safety and wellbeing. It is also evident that improvements in technology and government policy in developed countries and increasingly in the developing world, have improved the capabilities of health, safety and security agencies to deliver vital services to citizens during emergencies.

Whilst it is not possible to predict all the social and technology changes that will occur over time, steps can be taken to ensure that organisational, governance and legal arrangements are reasonably capable of dealing with existent and future challenges and opportunities.

Primarily for those reasons, it became necessary to conduct an overall review of emergency service access arrangements in Jamaica and to propose technically, economically and operationally feasible alternative means of accommodating the end-to-end process of call initiation, handling, and forwarding to the emergency service providers.

However, in Jamaica, there are currently no legislative or regulatory provisions specific to emergency service access (or emergency communications) other than the provisions of sections 39(2) (c) and 48(1) (a) (i) of the Telecommunications Act ("the Act") and the Office of Utilities Regulation's Determination Notice "Adoption of Alternative Emergency Numbers" Document No. TEL2010013_DET001, dated September 28, 2011. The limited provisions of the Act merely

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require that persons providing public telecommunications services, for the purposes of making calls to numbers in the National Numbering Plan, ensure that each customer of that service can reliably reach emergency services by dialling the specified emergency numbers. In that regard, there are no substantive governance arrangements to ensure that the expectations of the Government and the public regarding emergency service access are met.

Consequently, the OUR, in accordance with directions of the then Minister of Science, Technology, Energy and Mining, has engaged the services of Winbourne Consulting, LLC (the Consultant), an international public safety consulting firm from the United States, to develop Policy Recommendations for the Provision of Enhanced Emergency Service Access in Jamaica, for consideration by the Minister.

The Consultant is required to take a high-level look at the appropriateness and effectiveness of existing local arrangements for the handling and forwarding of emergency calls to the relevant emergency services providers, and make recommendations for service access enhancements as deemed necessary and feasible. The Consultant will also propose reasonable timelines for the achievement of the requisite enhancements.

Accordingly, the Consultant has reviewed the nature, scope and efficacy of those existing local emergency service access arrangements, taken account of relevant best practices, and considered current and likely changes in technologies for opportunities to improve service access. In that context this document sets out what has been deemed to be the existing capabilities in Jamaica—including the relevant emergency communications capabilities of the Jamaica Constabulary Force (JCF), Jamaican Fire Brigade (JFB) the FLOW call centre in areas such as staffing, systems, facilities and infrastructure to support this important public safety function—and includes the consultant's preliminary findings and considerations, and its initial proposals for a roadmap to establish a service delivery framework for the provision of enhanced emergency communications and service access.

The document identifies relevant policy issues for consideration and proposes legislative changes in particular areas.

The recommendations to improve the quality and efficiency of accessibility to emergency services will be made through careful consideration of regional and international best practices whilst giving due regard to local realities and possibilities. Importantly, this consultation document takes a long-term view and proposes measures to ensure that emergency access services develop over time in tandem with technological progress, changing industry structures, changing operational requirements of emergency service providers and changing public expectations.

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It is considered essential, therefore, to obtain stakeholders' inputs to the assessment of the current state of affairs in the emergency service environment and to solicit their ideas and perspectives on a range of critical issues including how access to the relevant services might be enhanced through the use of non-traditional information and communications technologies.

The OUR therefore presents, for broad stakeholder consultation, this review of existing conditions and, the resultant proposed policy recommendations and proposed changes to legislation. The review is based on, among other things, interviews with key stakeholders, site visits and related document reviews comprising the first phase of the consultancy—informative activities that were essential for evaluating the status quo and exploring opportunities.

The Consultant, based on this consultation, will further assess the requirements for legislation, enforcement regulation and governance and propose policy recommendations that will be fit for purpose. The proposed policy recommendations are to be presented in a planned all-stakeholder workshop.

PRESENTATION NOTES

The consultative section (which follows the BLANK PAGE) of this document, presents the largely unabridged text from two reports submitted to the OUR by the consultant. Confidential stakeholder information is redacted.

Notably, the consultant's findings on existing conditions may be specific to a particular stakeholder, and associated consultation questions may require a response primarily from the respective stakeholder. The findings may also speak narrowly to the results of analyses and definitive investigative actions. The contexts of the questions clarify the information requirements. However, other persons may opine on the issues in either circumstance as they see fit.

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COMMENTS FROM INTERESTED PARTIES

Persons who wish to express opinions on this Consultative Document are invited to submit their comments in writing to the OUR. Comments are invited on all aspects of the issues raised and the specific questions posed.

Responses to this Consultative Document are due by **2018 September 07** and should be sent by post, fax or e-mail to: -

Curtis N. Robinson
Office of Utilities Regulation
3rd Floor, PCJ Resource Centre
36 Trafalgar Road
P.O. Box 593
Kingston 10
Jamaica, W. I.

Fax: (876) 929-3635
E-mail: curtis.robinson@our.org.jm

Information considered confidential should be submitted separately and clearly identified as such. In the interests of transparency, respondents are requested to avoid confidentiality markings wherever possible. Respondents are encouraged to supply their responses in electronic form, so that they can be posted on the OUR's Website (or a link included where a respondents wish to post their response on their own website).

Comments on responses

The responses to this Consultative Document form a vital part of the consultation process, and so far as possible, should also be publicly available. Respondents will therefore have an opportunity to view and comment on the responses received from other contributors. Comments may take the form of correcting factual error or putting forward counter arguments, etc.

Comments on responses are requested by **2018 September 21** and should be sent as indicated above.

Arrangements for viewing responses

To allow responses to be publicly available, the OUR will keep the responses that it receives on files which can be viewed by, and copied for, visitors to the OUR's Offices. Individuals who wish

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to view the responses should make an appointment by contacting the information Officer by one of the following means:

Telephone: (876) 968 6053
Fax: (876) 929 3635
E-mail: Lyndon.Adlam@our.org.jm

Individuals may request photocopies of selected responses at cost price. Copies may also be ordered by post by sending a cheque made payable to "Office of Utilities Regulation." (The contact details above may be used to find out the correct amount).

The consultation schedule is tabulated below:

EVENT	DATE
Response to this Document by interested parties	**2018 September 07**
Comments on respondents' submissions	**2018 September 21**

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1.0   INTRODUCTION

This consultation is related to activities and deliverables for Phase One and Phase two of the project— **Consultancy for the Development of Policy Recommendations on Enhanced Access to Emergency Services in Jamaica**—which (in phase 1} reviewed the existing state of emergency communications and the capabilities of emergency communications providers in Jamaica, examined current and likely changes in technology for opportunities to improve service access and proposes requisite changes to call handling arrangements and (in phase 2), looked at requirements in relation to legislation, enforcement regulations and governance, and proposed policy positions that will be fit for purpose.

The Review documents the emergency communications capabilities of the Jamaican Constabulary Force (JCF), Jamaican Fire Brigade (JFB), and the FLOW call centre, to include staffing, systems, facilities and infrastructure to support this important public safety function.

The Review is based on document reviews and, the results of interviews and site visits conducted in Kingston during the week of November 27-December 1, 2017. The analysis of documentation provided by the OUR, since that visit, is included.

Discussion questions seeking stakeholder responses in the form of written comments, on all aspects of the issues raised, and to solicit opinions and suggestions thereon, are included at the end of topical sections.

The Project in Summary

The project has three (3) distinct phases. The three phases have individual deliverables:

- **Phase One** covered the project kick off and data collection activities. The stakeholder organizations provided responses to information and data requests during this phase. The Consultants also conducted site visits, interviewed stakeholders—such as FLOW, the Jamaica Constabulary Force (JCF), and the Jamaica Fire Brigade (JFB—on the existing call and dispatch processes, technologies, and performance issues. Other relevant stakeholder organizations were interviewed. The First Phase deliverable incorporated the written information/data request and, data gathering and analysis.

- **Phase Two** has provided an initial draft of policy recommendations for stakeholders' discussions, questions and comments.   The final document developed will include the stakeholder comments.

- **Tne Third Phase Deliverable** will incorporate the policy recommendations for presentation to the Minister. The deliverable from the Third Phase is the final Policy Recommendation Document.

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2.0   EXECUTIVE SUMMARY

This consultation exercise presents the Consultant's understanding of the existing capabilities of the emergency communications providers in Jamaica. It also presents proposed legislative/ regulatory changes and governance considerations and, proposals for a roadmap to establish a service delivery framework for the provision of efficient and reliable emergency communications.

This consultation presents the preliminary assessment of the existing emergency system, focusing on access to emergency services (fire, police and emergency medical/ambulance services). It highlights the preparatory work done through direct interviews and written stakeholders responses to focussed questionnaires.

Meetings were also held with the Office of Disaster Preparedness and Management (ODPEM), the National Works Agency (NWA) and the National Geospatial Data Division (NGDD). These highly informative meetings explored critical issues relating to the availability of Geographic Information Systems (GIS) services and fiber optic and microwave communications networks with direct governmental oversight. The important consideration of the location of a prospective Emergency Communications Centre was broached.

The findings from these stakeholder engagements and the analysis of relevant documentation supplied by the OUR, are presented. Importantly, the evaluation process and assimilation, in respect of stakeholder inputs, will continue for the duration of the project.

Initial proposals which were informed by key findings related to each emergency agency are presented.   Most of these proposals are focused on short-term remedies to perceived inadequacies that impede emergency communications and the ability of first responder agencies—fire, police, and emergency medical—to respond or perform their duties.

This consultation also proposes a framework of principles, standards, policies and constraints to guide the development, deployment and operation of an enhanced emergency service access solution for Jamaica.

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AREAS OF INVESTIGATION AND ASSOCIATED FINDINGS	
AREA OF INVESTIGATION	**FINDINGS**
Call Initiation, Call Handling and Routing	• The current FLOW operation using an Interactive Voice Response (IVR) system is not in line with international best practices or any emergency communications centre globally. • The FLOW call initiation and receipt process does not include an automatically generated caller location from the caller handset or the telecommunications carrier network. This is also out of alignment with international best practices. • Routing of emergency calls for fire and emergency medical are left up to the FLOW centre call centre represenTaives and their familiarity with geography throughout Jamaica, since there is no automatic location generated with the call or a display of the caller location on a GIS generated electronic map.
The FLOW Communications Centre and Emergency Communications	• The FLOW communications centre uses an Interactive Voice Response (IVR) system for callers to select the emergency agency from which they need assistance. The use of an IVR in emergency communications is contrary to international best practices. • No Caller Location Information is transmitted with the Emergency Call to FLOW Call takers. • None of the emergency calls that are forwarded from the FLOW centre to Fire, Police or emergency medical services have location information automatically generated with the call. • The above findings will contribute to longer response times by first responders.
The Jamaica Fire Brigade	• The technical capabilities to support emergency communications in the individual fire stations, and radio communications between the Duty Station at Fire stations and fire apparatus, require substantial upgrade for a necessary transition to state-of-the-art technologies.
The Jamaica Constabulary Force (JCF)	• The JCF Emergency Communications Centre (ECC) in Kingston has a number of important technical systems and operational procedures that provide more advanced services.

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AREAS OF INVESTIGATION AND ASSOCIATED FINDINGS	
AREA OF INVESTIGATION	**FINDINGS**
	• The use of Computer Aided Dispatching (CAD) software, logging and recording system and electronic mapping are best practices in ECCs across the globe. • The call receipt/initiation time meets and exceeds best practice standards. • The JCF facility in Kingston appears to have space to locate dispatch workstations for other emergency agencies. • The JCF could consider introducing two-way social media communications in the future ECCs.

The Telecommunications Act	• The Act would require additional sections to necessarily address key emergency communications considerations, for example:
	  • Requirement for a national integrated emergency communications system;
	  • Designation of a lead agency and/or Ministry, and identification of all public safety agencies and supporting entities;
	  • Requirement for a governance agreement between the parties describing the roles and responsibilities of the parties;
	  • Telecommunications carrier responsibilities and emergency call liability issues;
	  • Collection or generation of location information about emergency callers;
	  • Funding for the related services.

Geographic Information Systems	• Geographic Information Systems (GIS) plays an increasing leading role in emergency communications systems globally—it is one of the key elements in automatically identifying the caller's location. • The National Geospatial Data Division (NGDD) is serving as the repository for all GIS data across government—having this centralized coordination is a key success factor that could be leveraged to improve emergency communications.

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AREAS OF INVESTIGATION AND ASSOCIATED FINDINGS	
AREA OF INVESTIGATION	**FINDINGS**
National Communications Networks	• The National Works Agency is managing two projects that could contribute to the national emergency communications solution. • These projects involve a fibre-optic based communication infrastructure. and a microwave communications network.

The following preliminary recommendations for an implementation roadmap for developing an enhanced emergency service access solution for Jamaica is presented. The proposed solution is considered preliminary and may require further input owing to the consultant's limited access to the stakeholders through the consultancy. The goal is to propose a complete solution and implementation roadmap.

The targeted objective of the proposed solution is optimal service accessibility, performance and resilience. In this light, the proposal addresses issues related to emergency call delivery methodologies. There has also been an assessment of a proposed establishment and operation of initial call answering point(s), communications for emergency services providers, user/caller expectations, and public awareness education. Importantly, adaptation strategies have been identified to accommodate future developments with regards to end-to-end emergency call handling solutions.

The proposed Roadmap would also include a full description of each of the technologies required by the solution. Each technology, and its purpose in the system, has been identified at a high-level.

Potential future roles and responsibilities of the telecommunications carriers, service providers, the public safety agencies, other relevant stakeholders and emergency communications centres have been proposed with a view to ensuring the establishment of good governance.

The findings in terms of legislative and regulatory requirements, from a review of the Telecommunications Act, are tabulated above. These considerations are more fully outlined in section 15 of this consultation document.

There are always challenges and risks associated with deciding on and implementing enhanced emergency communications systems, as with any new venture. The following table provides a preliminary, high-level list of some common risks, challenges and opportunities for starting down this path. Identifying risks and challenges is an ongoing process.

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RISKS CHALLENGES AND OPPORTUNITIES	
Issues	**Descriptions**
Risks	• One risk is to do nothing, and continue with the inherent liabilities of the existing poorly functioning system described in the Findings section above. • Technical risk is minimal, all the technologies we are proposing are mature proven technologies used across the world. • Current Call initiation processes at the FLOW and JCF communications centres do not receive caller location information, which must be determined by questioning the caller, slowing down the response process. • FLOW call centre representaives route calls to a fire station or hospital based on what a caller tells them, leading to the possibility of an incorrect facility selection by the call taker, increasing the emergency response time and level of risk to the caller.
Challenges	• Getting the public safety stakeholders, including the relevant Ministries, to cooperate and endorse the new solution. • Moving from the current switched network to a full IP communications platform using existing infrastructure. • Identifying funding to pay for needed enhancements to existing systems and processes.
Opportunities	• Enhance the Quality of Life of Jamaican citizens and visitors. • Improve response times for public safety agencies to scene of incidents—citizens in need. • Give public safety agencies the tools they need to better serve the public and fight crime. • Recognition as a leader in emergency communications operations and technology internationally.

The Consultant met with NENA (National Emergency Number Association—the leading organization for the 9-1-1 industry) to discuss the requirement for exploring international cooperation options that could assist the Jamaican Government's efforts to improve emergency communications. NENA is considering a new International Affiliate policy. A copy of the draft policy is included in Appendix B.

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3.0   PROJECT METHODOLOGY

The methodology being applied to meet the project objectives is based on Winbourne LLC's structured project assessment methodology. The following graphic depicts the methodology and its application.
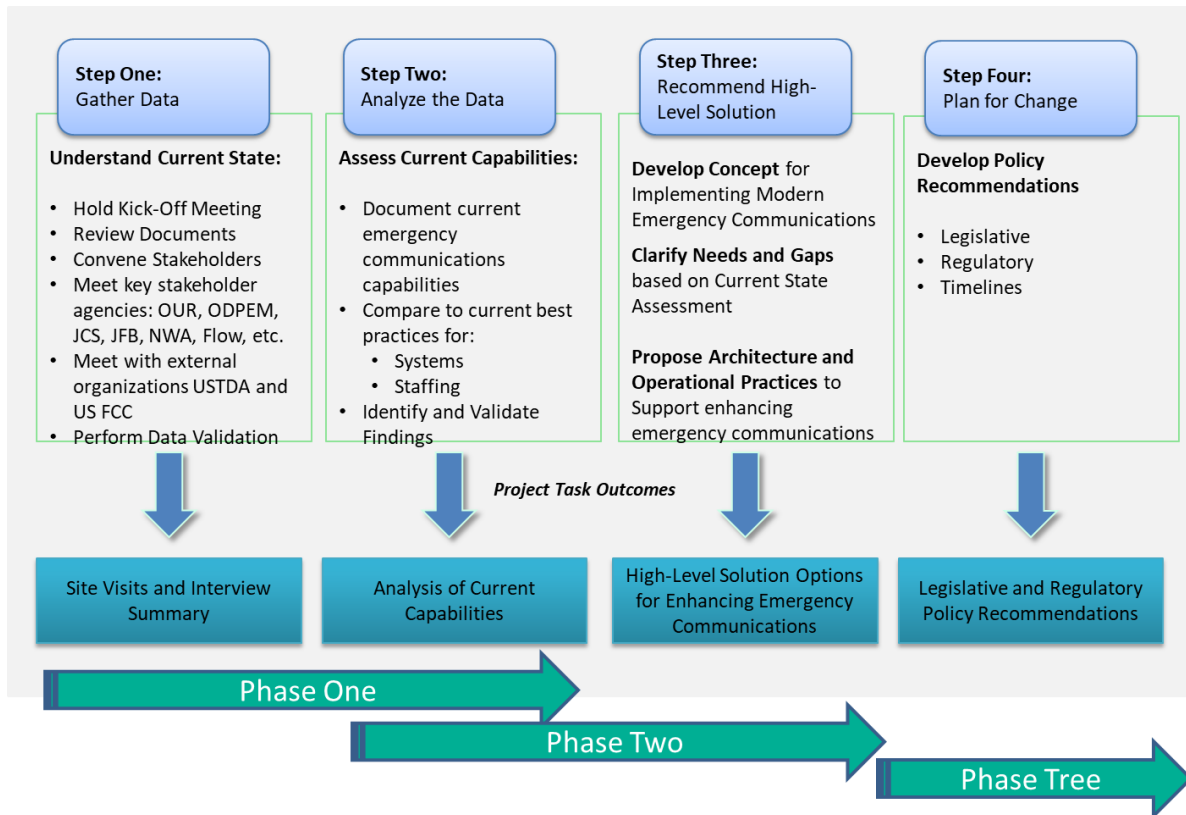
3.1.1   Step One—Gather Data

During the site visit to Kingston from 27 November to 1 December, 2017, and early January 2018, the following activities were undertaken to gather data on and build an understanding of existing conditions in relation to emergency communications in Jamaica:

1. Meetings were held with the following stakeholder agencies:

   - Jamaica Fire Brigade (JFB)
   - Jamaica Constabulary Force(JCF)
   - Ministry of Science, Energy and Technology (MSET)
   - Office of Disaster Preparedness and Emergency Management (ODPEM)
   - FLOW
   - Ministry of Economic Growth and Job Creation—National Geospatial Data Division (NGDD)

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2. Further data gathering during follow-up trip to Kingston in early January 2018 and meetings with additional agencies such as the National Works Agency (NWA) and the Ministry of Health.

3. Review of relevant industry documents, including:
   - Auditor General's Department Performance Audit – Jamaica Fire Brigade – June 2014
   - ODPEM organization brief
   - FLOW's written responses to data-gathering questionnaire
   - Telecommunications Act
   - Universal Access Fund legislation

The interviews, document reviews and findings from the first site visit are summarised in this consultative document.

3.1.2   Step Two—Analyze the Data

An initial analysis of the existing capabilities of the emergency communications systems, operations, facilities and services was carried out and used to provide a baseline for existing capabilities that can be used to support a new solution. Section 4 of this document presents related preliminary findings which were reviewed and validated during the site visit to Kingston in January 2018.

The analysis process included a review of the following key topics:

- Systems to support emergency communications from the carriers to the public safety agencies
- Staffing, training, and operational capabilities of the stakeholder agencies
- National infrastructure to support a national emergency communications system
- Current legislative and regulatory policies regarding emergency communications

3.1.3   Step Three—Propose a High-Level Solution

The development of a preliminary concept for implementing modern emergency communications in Jamaica has commenced, and is based on the findings from the analysis conducted in Step Two; key to developing a high-level solution is clarification of needs and gaps based on current state assessment. The concept addresses governance, technical architecture, and operations. This task is fully undertaken across Phases Two and Three of the project.

The work addresses tasks associated with governance of the enhanced system in Jamaica and provides recommendations related to the role of emergency communications and emergency management. Findings and recommendations related to possible international cooperation among Caribbean nations for emergency communications are also presented.

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Proposed outcome: High-hevel solution options for Enhancing Emergency Communications

3.1.4   Step Four—Plan for Change

A set of legislative and regulatory policy recommendations will be developed based the concept for implementing modern emergency communications in Jamaica. The policy recommendations will include technical and operational architecture considerations based on international best practices and local realities. The recommendations will also include those related to the funding of the new systems, liability issues and governance.

The proposed   "legislative and regulatory policy recommendations" are set out in section 15 of this consultation document.

Proposed outcome: Legislative and Regulatory Policy Recommendations

Discussion and Questions:

Question 3.0: Do you agree with the proposed approach?

Question 3.1: Based on the stakeholders consulted, do you think the consultation exercise was sufficiently inclusive? If no, why not?

Question 3.2: Are you aware of any additional information or data that would assist in developing the above referenced proposals?

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4.0   OVERVIEW OF THE EXISTING EMERGENCY COMMUNICATIONS SYSTEM

This overview presents the findings and observations from interviews with stakeholder organizations and site visits to the JCF and JFB facilities during the week of November 27 to December 1, 2017. A summary description of the capabilities of public safety agencies, and the processs at FLOW to receive and forward emergency calls to the appropriate emergency service providers, is provided. **The overview is subdivided according to the requirements included in the Scope of Work set out in the Terms of Reference for the project**.

A key observation has been that none of the public safety agencies—fire, police, or emergency medical—makes use of social media in day-today emergency communications. By contrast, ODPEM uses social media during major incidents to communicate with the public. In 2015, it was reported that over 80% of the Jamaican population uses social media—primarily Facebook, Instagram, Google+, and Twitter. The introduction of two-way social media communications in any future emergency communications solution is therefore proposed.

The following sections present the information gleaned from interviews and site visits during the week of November 28-December 1, 2017 and also include relevant information from documents provided by OUR.

4.1.1   FLOW Emergency Call Operations

A meeting was held with senior FLOW personnel on 2018 February 27. At that meeting, FLOW presented the following high-level, verbal explanation of how they handle emergency calls. FLOW subsequently provided a response to the data request provided by the OUR:

- FLOW call centres provide support for callers requesting Fire and Ambulance emergency services. The emergency service is provided 24 hours daily, 365(6) days for the year (inclusive of public holidays).
- Callers are able to access emergency service via three (3) charge free numbers (short codes) from any landline or mobile phone in Jamaica.
- The primary Emergency Service numbers are 911 and 112, however, 110 is also accessible.
- All emergency calls for 112, 911 and 110 from all telecommunications carriers are routed to the FLOW customer service centres in Kingston and Montego Bay. The short code 119 traditionally provides for calling directly to the police emergency call centre.

4.1.1.1 Call Initiation

- FLOW call centre representatives answer calls from the for public for ambulance services and fire. There is limited public ambulance service in Jamaica, and as a result, these calls

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are routed to hospitals nearest to the caller location. The JFB has some ambulances, but most ambulances are owned and operated by private ambulance services.

- FLOW call centre uses an Interactive Voice Response (IVR) to identify fire or ambulance emergency calls and what service is required from the caller's selection from IVR's menu.
- FLOW is not able to filter out multiple calls for the same incident. The only filter is the customer's selection. There are no other filters built into the IVR.

4.1.1.2 Call Handling

- FLOW does not typically transfer calls to the JCF, as traditionally was the case; there is now an option on the IVR that redirects police emergency calls to the JCF.
- The FLOW call centre representaive clarifies which agency is needed and asks the caller for their location. No location information is automatically available with the call.
- FLOW call centre representaives speak with the caller to obtain location information. Based on what the caller tells them, the FLOW call centre representaives forward the calls, for example, to fire stations by trying to identify the closest station to the caller/incident.
- FLOW operators can conference a call to the police if required in "non-police" emergencies.
- The FLOW call centre representative remains on the line until the caller and emergency personnel are actively communicating. Once the call is completed he/she logs the details of the call.

4.1.1.3 Call Forwarding and Routing

- Calls for the JCF are sent to four regional emergency call centres managed by the JCF
- Calls to the JFB are forwarded to the closest fire station or one of the police emergency call centres with requests for contact assistance.
- Multi-agency response is handled by call centre representaives calling each agency on a telephone or they ask JFB to call JCF, etc.
- FLOW does not have the technical capability to communicate with the hearing disabled community for emergency calls.

4.1.1.4 FLOW Systems and Technology

The FLOW IVR solution offers three (3) options to emergency callers:

Option 1–Police: Call is directly transferred to a JCF emergency communications centre, where the call is answered by a JCF call centre representaive.

Option 2-Fire: Call is answered by a FLOW call centre representaive who looks up the closest fire station and transfers the call, staying on the call until the caller and emergency personnel are actively communicating.

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Option 3—Ambulance: Call is answered by a FLOW call centre representaive who looks up the closest fire station or hospital with an ambulance service and transfers the call, staying on the call until communication is appropriately established.

There is no option for a multiple agency response (police, fire and ambulance). The FLOW call centre representaive must call each fire station and hospital and /or the police communications centre as required.

FLOW does not have the technical capability to determine the location of the caller in real time. Other limitations are:

- FLOW's use of Non-state-of-the-art communications technologies.
- Ambulance services have issues with availability of telephone lines.
- Adequacy of staffing of other agencies' call centres.

4.1.2 Assessment of Emergency Call Taking Operations

The following are key preliminary findings:

4.1.2.1 Use of Interactive Voice Response (IVR) Technology for Emergency Communications –

- The use of Interactive Voice Response (IVR) technology for fire and emergency medical calls is contrary to international best practices. International best practices for call initiation or receipt processing is for a person to answer the call.
- The use of a call centre for receiving calls for police emergency services only slows down the process by adding an additional step in the process to get help. Also, this step adds an additional point of failure in the call initiation/receipt process. Furthermore, the process of making a person in need listen to IVR announcement most likely results in a heightened level of anxiety on the part of the caller.
- The three IVR selections are not appropriate, since they only make the caller wait for an additional announcement for Fire and emergency medical services, then the call will go to the same place in the end. Also, the initial section of the IVR script makes mention of only fire and ambulance service. This could be misleading to a caller who wants to reach the Police, and who may hang up before hearing the rest of the script which gives selection options for police, fire, and ambulance. Time is of the essence in this process not only for the first responders getting to the scene, but especially for a caller seeking emergency services.

Proposed Recommendation: Eliminate the use of an IVR. Have the FLOW call centre staff answer the calls directly as was the traditional practice.

4.1.2.2 Multi Agency Response

There is the need for efficient conferencing of agencies in the case of a multi-agency response such as a major automobile accident, multiple alarm fire, etc.

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Proposed Recommendation: Call centre representaives can immediately conference in each agency required or the incident. That way each agency hears the same information: incident type, location, etc.

4.1.2.3 Plan for a Transition from Using Telecommunications Service Providers' Call Centres.

Telecommunications service providers' call centres are typically not organized to support emergency communications. Their primary mission is to support the commercial business.

Proposed Recommendation: Start planning for the transition to publicly managed emergency communications centres.

4.1.2.4 Emergency Communications for People with Hearing or Speech Disabilities.

No system or operational procedure that support emergency communications for people with hearing and speech disabilities was identified.

Proposed Recommendation: See section 15.10 for proposed recommendations.

4.1.2.5 Caller Location Information –

- The existing emergency call centre does not receive caller location information.
- The database for landline phones that is also used for billing purposes could be used to identify the location of emergency calls originating on landlines. Ideally, Mobile networks should be able to provide "Phase One" wireless location information. Phase One data is the call back number of the device and the location of the nearest tower.

Proposed Recommendation: Each carrier should provide landline data to include the physical location of the landline phone in order to build a cross carrier database to support identifying the location of these types of calls.

Discussion and Questions:

Question 4.1.0: Do you agree with the key preliminary findings regarding the use of the Interactive Voice Response (IVR) technology for emergency calls, and the proposed recommendation therefrom? If no, please state your views on the matter.

Question 4.1.1: Do you agree with the proposed transitioning of the emergency call-handling functions from telecommunications service providers to publically managed emergency communications centres? Whether 'yes' or 'no' to question 4.1.1, can you identify any technical or administrative constraints to the implementation of the proposed recommendation?

4.2.1   Jamaican Constabulary Force (JCF) Emergency Communications Centre (ECC)

A site visit was made to the JCF Emergency Communications Centre located at the JCF Headquarters in Kingston. The JCF has four regional emergency communications centres.

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4.2.1.1 Overview

- The Kingston centre dispatches for the parishes of Kingston, St. Catherine and St. Andrew.
- The ECC receives calls from FLOW, direct calls to a 7-digit number, 119 calls and departmental administrative calls.

4.2.1.2 JCF ECC Operations

The JCF Emergency Communications Centre (ECC) is professionally managed and staffed with trained call centre representatives and dispatchers. Based on data provided by the JCF, and direct observation during the site visit, the call answer time is considered to be within international best practices and standards

4.2.1.3 JCF ECC Technology

- Some key technologies in use are in line with international best practices
- The ECC will need Call Processing Equipment (CPE) for emergency communications to receive location information for landline and cellular mobile calls.

4.2.1.4 Proposed Recommendation

Proposed Recommendation: Provide emergency communications CPE at the call taking position in the ECCs

Discussion and Questions:

Question 4.2.0: Do you agree with the proposed recommendations for enhancement of the JCF EEC operations?

4.3.1   Jamaica Fire Brigade (JFB)

A site visit was made to a major Fire Station in Kingston to get an overview of the JFB emergency communications capabilities and systems and to view the systems and operations first hand.

4.3.1.1 Call Initiation

- JFB fire stations receive calls at the Duty Station in each fire station.
- The Duty Station is staffed 24X7X365.
- FLOW connects to the fire station Duty station by a regular landline telephone or a ring down line (typically a dedicated telephone line which automatically rings a phone when the originating phone goes off hook. No dial tone is provided on the ringdown line) to each fire station.

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4.3.1.2 Call Handling

- FLOW operator provides information to the JFB duty station staff.
- JFB fire stations receive ambulance calls from FLOW under the existing MOH-JFB Emergency Medical Service (EMS) scheme which is operated in some western parishes.
- Of note is the fact that the JFB is currently training Fire Fighters as Emergency Medical Technicians (EMTs).

4.3.1.3 Dispatching

- JFB Auditor General's Report—the report indicated that a 15-minute response time should be the goal. But road traffic potentially militates against the achievement of this goal.
- The Auditor General's report advised that JFB should analyze its response times to find ways to shorten the response time.
- Wildfire Coordination –
    ODPEM coordinates with JFB on wildfires, using the ODPEM command centre

4.3.2   Assessment of the JFB Emergency Call Taking Operation

Based on the information provided, the following preliminary findings were made and recommendations proposed.

4.3.2.1 JFB Emergency Communications Operations

- Caller location is verbally obtained from the caller, and a manual determination of the location of the incident to dispatch the fire apparatus is made.

4.3.2.2 JFB Emergency Communications Technology

- The JFB does not have state-of-the-art emergency call taking, alerting or dispatching systems.
- The JFB does not have access to caller location information.

4.3.2.3. Recommendation

Proposed Recommendation: Implement traffic light pre-emption system to speed up response times to incidents.

Discussion and Questions:

Question 4.3.0 What practical problems do you foresee with the introduction of traffic light preemption in jamaica for the JFB and how might these be addressed now and in the future?

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Question 4.3.1: What are your views on the JFB's current emergency call taking and dispatching processes and how might these be improved?

5.0   ADDITIONAL STAKEHOLDER INTERVIEWS

A constructive and informative discussion was held with senior personnel from the NGDD.

5.1.1   Summary Overview

This Division of the Ministry has the following responsibilities, among others, for GIS data:

- Coordinates with other government entities on GIS issues and data.
- Provides policy direction to GIS activities in government.
- Supports ODPEM during incidents by providing maps to the EOC.
- Facilitates agencies use of the enterprise ESRI GIS license.

5.1.2   NGDD GIS Repository

- NGDD coordinates the deployment of the ESRI [Environmental Systems Research Institute – the world's largest supplier of geographic information system (GIS) software and, web GIS and geodatabase management applications] licenses. Deployment means that an agency has access to ESRI software and has implemented GIS in the agency.
- NGDD acts as the repository for all GIS data across government agencies.
- NGDD develops policy for all government agencies for their implementation of GIS capabilities . The agencies provide the GIS data to NGDD.
- Agencies are allowed to identify sensitive GIS data and protect it—not provide it to NGDD.
- Each agency should have a GIS unit or a person maintaining the GIS data.

5.1.3   Findings

- The ESRI enterprise license is a very positive development for emergency communications
- A nationwide centralized Street Centre-Line Map generated for GSI data is required for public safety.
- The National Geospatial Data Division (NGDD) is in a position to coordinate this solution for public safety emergency communications.

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5.1.4 Recommendations

1) Proposed Recommendation: NGDD should coordinate the centralization of a nationwide Street Centre-Line Map for public safety emergency communications with all associated agencies. A best practice associated with public safety communications systems is the use of a GIS-based map. Geospatial call routing enables more accurate call routing. The accuracy of agency response boundaries and the GIS polygon layers will have a dramatic impact on call routing and dispatch operations.

2) Proposed Recommendation: NGDD should coordinate the development of public safety layers to the GIS database. Examples of public safety GIS layer data sets include the following:

- Roads/Streets, street Centre Line maps of each jurisdiction including one way streets, speed limits, bridges with height and load, railroad tracks, stop signs, stop lights.
- Aerial imagery, Jurisdictional Boundaries,.
- Emergency Zones and routes, Bus routes.
- Critical Infrastructure (transmission pipes, etc.).
- Parcels, including building footprints, Buildings.
- Airports, Prisons, etc.
- PSAPs/ECCs, Police, Fire, EMS stations/special units, Fire Hydrants.
- Hospitals, clinics and Drug stores.
- Schools, Courts and Municipal/County/City government buildings.

See https://www.esri.com/en-us/industries/public-safety/overview for practical examples of the use of GIS for public safety emergency communications

Discussion and Questions:

Question 5.1.0: What are your views on the proposed recommendations regarding the use of GIS-based maps for public safety emergency communications, and the coordinating role of the NGDD?

Question 5.1.1: Are there other appropriately accessible sources of data that could be used to augment public safety GIS?

Discussions were held with senior personnel of ODPEM, the national emergency management agency for Jamaica. ODPEM is also a member of the Caribbean Disaster Emergency Management Agency (CDEMA).

5.2.1 ODPEM Priorities that Support Emergency Communications

5.2.1.1 Communications Centres

- Supports the concept of centralized emergency communications centres.

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- Supports the concept that emergency communications centres should include JCF, JFB and Emergency Medical dispatching operations.

5.2.1.2 Interoperability

- Radio interoperability exists between ODPEM, JFB, JCF and Healh angencies. ODPEM is planning to update their radio system. This is conducive to the establishmsnt of enhanced emergency communications in Jamaica .

5.2.1.3 Geographical Information System

- ODPEM stated that it is critical that GIS is implemented in the JFB and JCF. This is conducive to the eatablishment of enhanced emergency communications in Jamaica.

5.2.1.4 Data Management

- Agencies should share emergency communications data .
- JCF should know if a call for JFB service is made. (This was a requirement in FLOW's traditional emergency operator service).

6.0   Review of Telecommunications Act

The Act has three sections that pertain to, albeit with limited direct provisions for, emergency communications:

- Part III Licensing of Telecommunications Services, Section 9. This section refers to licensing of telecommunications services and guidelines for providing these services.
- Section 39 regarding universal service, sub-section (2) (c) and Section 48 (1) (a) (i) and (1) (b). The sub-sections mentioned above mainly require carriers to provide for reliable dialing for emergency calls and that there will be no fee imposed for such a call.

7.0   Emergency Communications for People with Hearing or Speech Disabilities

No systems, technical or procedural, (used by FLOW, JFB, or JCF) that support emergency communications from people with hearing and speech disabilities were identified and, for all practical purposes, are non-existent.   In addition, there is no reference to emergency communications services to people with disabilities in the current Telecommunications Act.

Recommendation:

Implement technology (text) and operations procedures for communicating with people with hearing or speech disabilities.

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Discussion and Questions:

Question 7.0: What practical problems do you foresee in resolving the issues ? How do you propose to overcome them?

8.0   Overview of International Best Practices and Cooperation, for Current and Future Development

The following section presents an overview of example international Best Practices as related to emergency communications.

The Essential Functions And Objectives of an Emergency Communications System.

In the adjacent graphic, three high-level objectives that every emergency communications systems should strive to provide are identified.
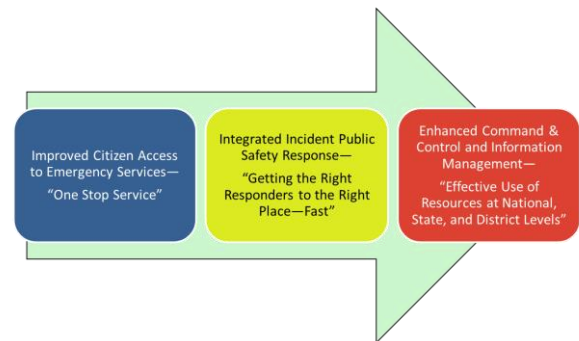
8.1

Improved Citizen Access to Emergency Services—"One-Stop Service"
Use one, easily remembered three-digit telephone number for residents and visitors to use to call for any emergency services they need—police, fire or emergency medical services
All previous emergency numbers are still available for people to dial, just pointed to the main three-digit number
Centralize emergency communications in redundant, operationally integrated facilities
Calls are not transferred to additional facilities for emergency service provision—all services provided centrally to reduce time and errors in transfers.
Answer emergency calls in 10 seconds or less 90% (or 95% in 20 seconds or less) of the time during the busiest hour for the emergency communications centre
Use a Universal or Unified Call centre representaive to answer all calls, trained to take police, fire and EMS calls
Receive caller location information automatically with the call
Use of Standard Operating Procedures (SOP) to answer and manage calls and dispatch emergency units
Include systems to support people with hearing disabilities, to include Telecommunications Device for the Deaf—TDD/TTY (Teletype). Also, communications centre staff must receive specialized training to use the systems and to use the Standard Operating Procedures (SOP) designed to support these communications.

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Improved Citizen Access to Emergency Services—"One-Stop Service"
TDD/TTY technology gives the deaf and hard of hearing a text-based system for communicating over phone lines among themselves or with hearing individuals. A typical 911 centre is equipped to receive TDD/TTY messages from users of these devices.
Video Relay Services (VRS) are also used for people with speech disabilities. The VRS centres are staffed with people capable of communicating using American Sign Language (ASL) and using video link between the caller and the VRS. The VRS determines the closest 911 centre and links them to the call. Note: Jamaican Sign Language (JSL, which may be considered a derivative of ASL) is used in jamaica.
Text to 911 is the most recent development in assisting speech and hearing disabled community to communicate with emergency communications centres.

8.2

Integrated Incident Public Safety Response **"Getting the Right Responders to the Right Place Fast"**
Implement an integrated emergency communications system that incorporates police, fire and emergency medical responding agencies to best manage response.
Plan, procure, and implement single integrated technical platform: Computer Aided Dispatch (CAD), mapping, caller location (ANI/ALI), mobile data systems, interoperable voice data communications networks.
Build integrated police, fire, EMS, emergency management response plans into systems
Enhance situational awareness to improve First Responder safety.
A best practice associated with public safety communications systems is the use of a GIS-based map.

8.3

Enhanced Communications, Command, and Control and Information Manageent **"Effective Use of Resources at National, Regional, and Parish Levels"**
Effective Use of Resources at National, Regional, and Parish level—Enhance Situational Awareness through a shared Common Operating Picture (COP) using the ECC technology
Utilize a dedicated , redundant public safety network for all voice, data and video communications across Jamaica—Emergency Services Internet Protocol Network (ESInet)
Manage data collected by new technologies (CAD, RMS, etc.) for prepare, mitigate, respond and recover from disasters by using "Big Data" or Business Intelligence (BI) applications
Plan and conduct exercises of multi-agency response to incidents and disasters

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Enhanced Communications, Command, and Control and Information Manageent "Effective Use of Resources at National, Regional, and Parish Levels"
Use of mobile communications centres/vehicles to communicate at incident scene
Mass notifications systems are used to communicate with the public during disasters and major incidents

8.4 Call Management Operations

8.4.1 Call Initiation

- Call should arrive to Call centre representaive with the caller's location information.
- Location Information should include emergency service area of caller for police, fire, EMS.

8.4.2 Call Handling

- The key is to understand location and type/severity of the purpose of call--"What is the Nature of your call?" "Where are you located?"
- Should last no longer than 30-60 seconds, unless providing Pre-Arrival Medical Instructions.
- Provide Pre-Arrival Medical instructions.
- Don't try to solve the problem.
- Send to Dispatch as fast as possible.
- Let caller know that help is on the way.
- Track incident with unique identifie.r

8.4.3 Call Routing/Forwarding

- Routing call to the closest emergency communications centre through telecommunications/network infrastructure.
- Forwarding—Hot transfer is best where the original call centre representaive stays on the phone with the caller while connection to forwarding party is made and completes the call.

8.4.4 Call Management and Dispatch Technology

Use technology tools to assist Call-Takers and Dispatchers to get first responders to incident as fast as possible. These tools include the following:

- Caller Location Identification
- 911 Call Processing Equipment, providing text, video and photos to 911
- Computer Aided Dispatch

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- Radio

- Mobile Data

- Accurate Mapping and Access to Geographical Information System data

- Next Generation 911

- Emergency Services IP network (ESInet)

- Emergency Call Core Services for caller location and routing

- Social Media communications through Facebook, Twitter, Instagram…

8.4.5   Centralized Emergency Communications Centre(s)

- Use Internationally recognized guidelines for facility design—National Fire Protection Association (NFPA) standard 1221.

- Design to include redundancy and diversity of systems, power and cooling.

- Design a facility for people to use 24/7/365.

8.4.6   Professional Civilian Staff

- Hire and train civilian staff to manage call taking and dispatching operations.

8.4.7   Conduct Public Education

- Inform the public when and why to call 911/112.
- Educate the kids—they will teach the adults.
- Include education in your budget.

8.4.8   Establish a Governance Agreement and Structure to Facilitate Cooperation among the Public Safety Agencies

Best practices related to managing the multi-party emergency communications systems utilize a governance structure that defines the roles, responsibilities of all the parties. The agreement is implemented through a governance structure that defines the management oversight, reporting, etc. for the operation of the system. Key objectives should be to:

- Prepare an emergency communications governance agreement between the public safety agencies that will address their roles and responsibilities within the new structure.

- Define the services provided by the emergency communications centres to police, fire, emergency medical services and disaster management.

- Establish an independent emergency communications agency—not managed by the police, fire or emergency medical services, and its reporting structure and place in the government.

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8.4.9   Define performance standards and metrics that the emergency communications agency will need to meet, for example, standards related to call receipt management, dispatch operations and data management.

8.4.10 Legislation and Regulation

The best practices associated with legislation and regulations for supporting emergency communications vary from country to country, but there are several major elements that are considered key by industry experts. See section 15 for proposed recommendations for relevant legislative provisions.

8.4.11 Use Internationally Recognized Standards

- Apply NENA, APCO, and EENA call receipt, processing/handling standards.
- Establish performance metrics to measure the implementation of the standards in day-to-day operations.

Discussion and Questions:

Question 8.0: Do you agree with the proposals on best practices?
Question 8.1: What practical problems do you foresee in applying the best practices to Jamaica? How would you propose to overcome the problems?

9.0   Preliminary Roadmap—Enhancing Emergency Communications in Jamaica

A set of preliminary recommendations have been developed for a roadmap that should lead to an enhanced emergency service access solution for Jamaica.

The solution that is proposed should provide optimal service accessibility, performance and systems resiliency. In that light, this document addresses issues related to emergency call delivery methodologies. In addition, the establishment and operation of initial call answering point(s), communications for emergency services providers, user/caller expectations, and public awareness education have been assessed and, strategies to adapt to future developments with regards to end-to-end emergency call handling solutions have been identified.

9.1.1   Legislative/Regulatory Actions

The roadmap starts with legislative actions that would provide the legal basis for the proposed changes to the emergency communications systems. Regulatory changes would follow, providing telecommunications operators with guidelines for supporting the system. See section 15 for proposed recommendations for relevant legislative provisions.

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9.1.2 Initiate Governance Discussions with Key Stakeholders

- Designate a lead agency within the government to manage the process.
- Establish Governance Agreement and structure based on new legislative mandate.
- Performance metrics and reporting should be included in the operations agreement.

9.1.3 Establish Program Management Office (PMO)

- Coordinating a project of this size will require a dedicated project management staff to work with vendors, government ministries and agencies, ECC configuration, testing training, etc.
- The PMO would be responsible for managing the project schedule to include major and subtasks, vendor management and coordination, contracting issues, budget, overall implementation, and status reporting.
- Initiate communications with the National Emergency Number Association (NENA) and the Association for Public Safety Communications Officer (APC) as well as the European Emergency number Association (EENA) on the use of standards and best practices.

9.1.4 Determine System Procurement and Funding Methodology

- Use Third Party financing through a Public Private Partnership or similar vehicle to obtain financing, implementation and managed service solution.
- Use traditional government financing and procurement methods.
- Define/Establish funding sources for emergency communications system.
- Prepare Solicitation for Next Generation 112/911 solution.

9.1.5 Undertake Technology Procurement

- Systems to include: Additional CAD licenses and workstations; new public safety Call Processing Equipment (911 CPE); Fire Station Alerting System; Next Generation 911 solution to include the ESInet and core services software.
- Coordinate with ODPEM on technology procurements to integrate with the national Emergency Operations Centre.
- Configure, install, test new 911 CPE and additional CAD positions in each centre, as well as systems to support fire operations such as modernized Fire Station Alerting System.
- Move JFB emergency communications operations into JCF ECCs and transfer.
- Coordinate with Ministry of Health on dispatching requirements.
- A separate section explaining the abovementinoned systems is included below.

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9.1.6 Consolidate Emergency Communications Operations

- Utilize the JCF Emergency Communications Centres (ECC) as the Primary Public Safety Answering Points (PSAP) –consolidating JCF, JFB and Ministry of Health operations into the ECCs.
- Establish consolidated ECC performance metrics for emergency communications operations for Call Initiation, Handling, and Dispatching.

9.1.7 Facilities

- Appropriately size the facilities to accommodate any increased call volume, also install one additional call taking position to accommodate fire calls and two dispatch work stations in each centre for JFB operations as well as a supervisor position.
- Confirm that each JCF communications centre has room for JFB dispatch positions.
- Confirm that each JCF communications centre has redundant power (generators, UPS), cooling, etc.
- Add dispatch workstations for JFB staff as necessary.

9.1.8 Policies and Procedures

- Establish jointly developed policies and procedures for managing calls and dispatch centre between JFB and JCF.
- Review and update JCF and JFB emergency communications policies and procedures for inclusion in new CAD as well as for staff training.
- Review and update JCF and JFB emergency call taking procedures to adapt for text-to-911, customer service levels, call answering and handing times, etc.
- Conduct staff training in new technologies and procedures.

9.1.9 Call Routing

- Route all emergency calls from all carrier contact centres to four (4) JCS communications centres.
- Caller location information data for landline and "*Phase One-Wireless*" phone calls should be provided by carriers.

9.1.10 Coordinate with telecommunications carriers

- Coordinate with telecommunications carriers, especially FLOW for regulatory changes and technical changes to the call routing infrastructure.
- Reprogramming of telecommunications switches to rout emergency calls to NG911 data centres.

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- Transition emergency call routing from FLOW to ECCs.

Discussion and Questions:

Question 9.0: Do you agree with the proposed approach to enhancing emergency communications in Jamaica? Why or Why Not?

Question 9.1: Do you agree on the need for multi-agency governance of the system?

Question 9.2: What is the best manner to organize multi-agency governance?

Question 9.3: What agency lead in managing the implementation of transition activtities?

Question 9.4: What practical problems do you foresee? How would you propose to overcome them?

Question 9.5: Do you agree with the proposed transition plan for changing emergency call operations from FLOW to government operated emergency communications centres?

10.0 TECHNOLOGIES FOR EMERGENCY COMMUNICATIONS SERVICE ENHANCEMENT

The following table presents the key technology elements required by a modern emergency communications centre. These technologies are within the ECC.

System	Description and Function
Telecommunications Call Processing Equipment (CPE)	**CPE Purpose:** Transfers Automatic Number Identifier-Automatic Location Identifier (ANI-ALI) from phone call to text and transfers data to CAD; used by call centre representaive as telephone; linked to map to show caller location
Telephone sets and equipment	**Purpose:** Provides administrative and back-up emergency telecommunications for call centre staff
Computer Aided Dispatch (CAD) software	**Purpose:** Recommends closest available police, fire or ambulance unit to scene of incident, and maintain the status of responding resources in the field. Used by emergency communications dispatchers and call-takers in public-safety call centres and by field personnel utilizing mobile data computers (MDCs). CAD systems also include interfaces for radio, telecommunications, map, and logging and recording system
Radio Console Equipment	**Purpose:** Provides dispatcher with access to radio communication with police, fire, ambulance and rescue units. Can link different talk groups, etc.
Logging and Recording	**Purpose:** Provide a record of all telephone calls, radio communications, and CAD data and of specific events

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Mapping/Geographical Information System (GIS)	**Purpose:** Provide location information to CAD, AVL and other systems. Generally included with CAD product, requires modems in vehicles.
Automatic Vehicle Location	**Purpose:** Provide current location of police, fire, Emergency medical, and rescue units, provides graphical display using GPS. Generally included with CAD product, requires modems in vehicles.
Supporting Systems and Equipment	Local Area Network Equipment **Purpose:** Provides communication for telecommunications, CAD, radio, Logging and Recording, Mapping and provides the data communication link between emergency call takers, dispatchers and with supervisors, Printers, Faxes, other office equipment **Purpose:** Provide printing, faxing and office administrative support

Systems that are outside the ECC, connects the ECCs, data centres and first responder facilities.

System	Description and Function
Next Generation 9-1-1 Emergency Services IP Network (ESInet)	**Purpose:** Provides call routing to emergency call centre; caller location information; provides means to exchange public safety data between responding agencies or for investigations; links emergency communications centres and other public safety facilities
Next Generation 9-1-1 Core Services	**Purpose:** Software elements of the NG9-1-1 system that support caller location information, routing of calls to appropriate call centre, border controls, cyber security. Located in two geographically diverse data centres

Discussion and Questions:

Question 10.0: Do you agree with the need for the technologies proposed in the table?

Question 10.1: Can any existing systems or technologies, such as the JPS Computer Aided Dispatch system, be leveraged for the new solution?

Question 10.2: What practical problems do you foresee in implementing these technologies? How would you propose to overcome them?

Question 10.3: Do you have questions in regard to how these technologies will enhance emergency communications in Jamaica?

Question 10.4: What other technologies should be included in this list?

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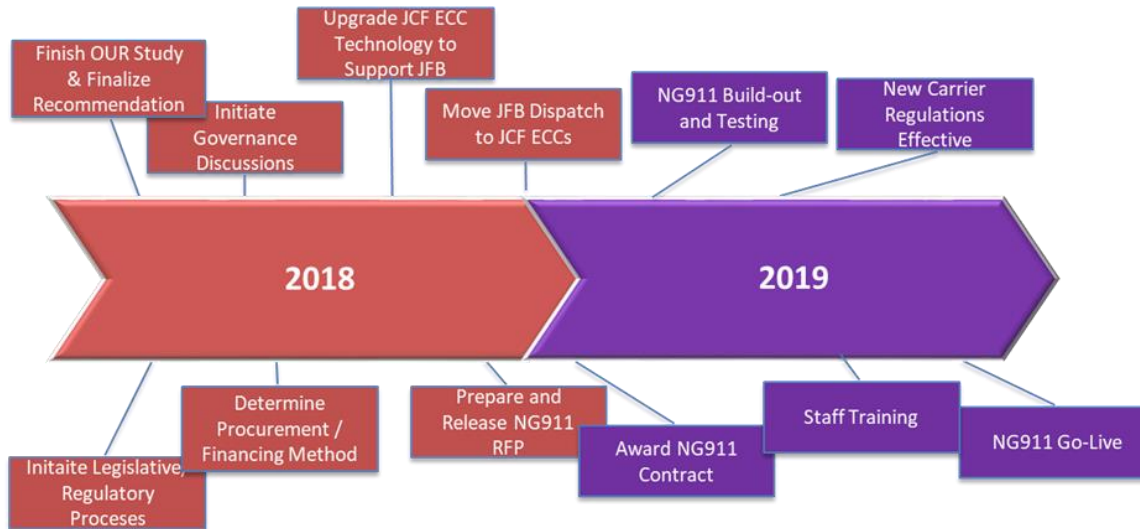## 11.0   Conceptual Planning and Implementation Timeline

The following section presents a conceptual schedule for planning and implementing the emergency communications system in Jamaica.   The schedule is based on a number of hypothetical planning assumptions presented in the following table. The dates are for illustration purposes only.

11.1

Planning Assumptions
Government Appoints Lead Agency to manage Planning, Procurement and Implementation
Government investigates use of Third Party financing and managed services
Decision is made on Procurement and Funding approach early in process
Budget and/or third party financing selection made in Q1 or Q2 2018
Legislation and regulatory changes are made in 2018
JFB and JCF initiate governance discussions, agreement and JFB plans to move into JCF ECCs
JCF ECCs can accommodate additional work space for JFB dispatching
Technology to support JFB move to JCF facilities are installed, tested and training completed
NG911 solution is selected by government as overall solution
NG911 procurement starts in 2018 and selection in early 2019
NWA fiber optic and microwave networks can be used by NG911 solution or alternative network aggregation solution is available for fully resilient nodes

The following graphic depicts a conceptual implementation schedule for enhancing systems and operations. The time required for specific actions as well as the planning assumptions that drive the schedule will be verified.

Although, from experience, the two (2) year implementation timeline is realistic but depends on many factors such as leadership, agency cooperation, budget, procurement decisions, and timing of legislative and regulatory changes.

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Discussion and Questions:

Question 11.0: Do you agree with the proposed schedule? Why or Why Not?

Question 11.1 : What are the major impediments to achieving the proposed schedule? How do propose to overcome them?

12.0   Service Governance Structure and Arrangements

International best practices related to managing the multi-party emergency communications systems utilize a governance structure and requires a governance agreement that defines the roles, responsibilities of all the parties. The agreement is implemented through the governance structure that defines the management oversight, reporting, etc., for the operation of the system. Section 15.4 discusses the general concepts that are associated with governance and sets out proposed recommendations for relevant legisslative provisions.

13.0   Broad Industry Coordination

A national emergency management agency is a key stakeholder in the emergency communications environment. In Jamaica, the Office of Disaster Preparedness and Emergency Management (ODPEM) has the responsibility for managing multi-agency response to disasters man-made and naturally occurring large-scale emergencies.

Coordination between emergency management agencies and emergency communications agencies is primarily accomplished thorough a Computer Aided Dispatch (CAD) system. The CAD system can show the emergency managers and other staff working in an Emergency Operations Centre (EOC). The CAD system can display the deployed and available first responder personnel

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and equipment, for example. So, access to the CAD system from a read-only perspective is made available to the EOC on an on-going day-to-day basis.

In some countries, dispatchers are assigned to the EOC during a major incident to provide the EOC Director direct access to dispatching resources. In this example, dispatching workstations and systems are installed in the EOC. Also, specific policies and procedures between the ECC and EOC are required between the agencies for managing together in a crisis.

Discussion and Questions:

Question 13.0: What are your views on this conception of broad industry coordination?

14.0   International Cooperation

The project includes a review of international cooperation opportunities that could enhance the Jamaican government's efforts to improve emergency communications.

In that regard, the Contract states:

5.1 Examine, evaluate the need for the establishment of an independent or subsidiary (joint industry/government) local emergency number association to provide oversight for the coordination of planning and development of emergency access service and to benefit from international experiences in relation to policy, technology and operations. And by extension:

  a) *Examine, evaluate the prospects for the establishment of a Caribbean Emergency Number Association to actively advance the safety and well-being of Caribbean citizens.*

  b) *Explore opportunities and membership in EENA–the European Emergency Number Association, and NENA– the National Emergency Number Association (or the 911 association in the USA)—— EENA membership includes more than 1000 emergency services representatives from 80 countries world-wide, 75 solution providers, 15 international associations/organisations, more than 150 Members of the European Parliament and 73 researchers.*

The Consultants have had an initial meeting with with a reprresentative of the National Emergency Number Association (NENA) to discuss this requirement. The matter has been reserved for further consideration.

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15.0 Proposed Policy Recommendations and Possible Legislative Change Requirements

The policy areas outlined in this section cover proposed recommendations, some of which may require legislative changes

The emergency communications legislations referenced in the table immediately below provide examples of, and sources of information for the proposed changes to the Act. The table following thereafter lists reliable international industry sources for the regulatory policy research undertaken.

Emergency Communications Legislative Policy Sources
European Emergency Number Association; http://www.eena.org/pages/Advocacy-Documents#.WoBdtejwbD4
Commonwealth of Massachusetts, USA; https://ma911.org/911-legislation/
Commonwealth of Pennsylvania, USA; http://www.pema.pa.gov/911/Pages/911-LEGISLATION---.aspx
State of Alabama, USA; https://al911board.com/legal/legislation
Canada, Act to Establish and Implement a Province-wide "911" Telephone Number for the Reporting of Emergencies; https://nslegislature.ca/sites/default/files/legc/statutes/emerg911.htm
The National Association of State 911 Directors (NASNA); http://www.nasna911.org/resources/legislation-and-regulation
National Emergency Number Association (NENA); https://www.nena.org/?page=Model911Legislation
Association of Public Safety Communications Officers (APCO); https://www.apcointl.org

Emergency Communications Regulatory Policy Sources
United Kingdom--Ofcom; https://www.ofcom.org.uk
United States--Federal Communications Commission; https://www.fcc.gov/consumers/guides/emergency-communications
Estonia-- Estonian Competition Authority; https://www.tja.ee/et
Canada--Canadian Radio-television and Telecommunications Commission (CRTC); https://crtc.gc.ca/eng/home-accueil.htm

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In the following proposed recommendations the references to 911- service, calls, system, etc., are for illustration purposes only.

15.1   Definitions

Purpose of this section. The section defines the following words and terms which would have specific meanings in the context of the policy/legislation changes proposed. In addition to providing a guide to terms and acronyms, this list of definitions can be especially important if using a telephone system-related surcharge or fee to fund the emergency communications system.

Example Definitions: The following are examples—from 2017 Massachusetts state 911 law and other industry sources.

> Automatic Location Identification or ALI means an enhanced 911-service capability that allows for the automatic display of information relating to the geographical location of the communication device used to place a 911 call.

> ALI Database means the set of ALI records residing on a computer system.

> Automatic Number Identification or ANI means an enhanced 911-service capability that allows for the automatic display of a telephone number used to place or route a 911 call.

> Advanced Mobile Location or AML including Android Emergency Location Service (ELS) is technology built into a mobile phone operating system which, when an emergency number is dialled, provides additional location information from a multiple sensors built into the phone including barometric pressure, motion sensor, and proximity to Bluetooth and WiFi beacons.

> Business or entity multi-line telephone system means a multi-line telephone system that provides service to a corporation, trust, organization, partnership, cooperative, joint venture, incorporated or unincorporated association, whether for-profit or not-for-profit and whether created by or organized under relevant laws.

> Call back number means a number used by a PSAP to contact the location from which the 911 call was placed. This number shall allow a call from the PSAP to reach the station used to originate the 911 call, or the number of a switchboard operator, attendant, or other designated on- site individual with the ability to direct emergency responders to the 911 caller's location 24 hours a day, 7 days a weeks, and 365 days a year.

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Centrex means a system that is central office-based and has feature characteristics similar to a private branch exchange.

Emergency Communications Service refers to a service that allows the two-way transmission, conveyance or routing of voice, data, audio, video or any information of signals, including cable and internet protocol services, to a point or between or among points by or through any electronic, radio, satellite, cable, optical, microwave or other medium or method in existence on or after the effective date of this definition, regardless of protocol used for the transmission or conveyance, only if that service is capable of contacting a PSAP by entering or dialling the digits 911 and is subject to applicable regulatory requirements to provide the 911 dealing capability.

911 system refers to a system capable of receiving and processing an emergency communication throughout a defined geographic area. The term shall include a national 911 system or PSAP(s) that receive and mange emergency communications.

Direct Inward Dealing means the ability for an outside caller to be connected directly to an internal telephone extension without having to pass through a switchboard operator or attendant.

Dispatchable Location refers to the civic address or street address of the calling party plus additional information such as floor, suite, apartment or similar information that may be needed to adequately identify the location of the calling party.

Emergency response location or ERL means a location to which emergency response services may be dispatched.

Emergency response location or ERL identifier means an additional location identification that provides specific location identification within a building, structure, complex, or campus such as a floor name or number, wing name or number, building name or number, unit name or number, room name or number, or office or cubicle name or number.

End user means a person who uses communication services.

Enhanced 911 service means 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 911, 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.

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Enhanced 911 network features means the components of enhanced 911 service that provide selective routing, automatic number identification and automatic location identification.

Emergency Service Zone (ESZ) refers to an area of a region or parish where the emergency services providers (law enforcement, fire, and medical) are the same throughout. ESZs are associated with ESNs for routing purposes.

Governmental agency multi-line telephone system means a multi-line telephone system that provides service to an agency, department, executive office, board, commission, division or authority of the government, or any of its branches, or of any political subdivisions thereof; each board, commission, committee or subcommittee of any parish, district, city, region, or town, however elected, appointed, or otherwise constituted.

Hotel/motel multi-line telephone system means a multi-line telephone system that provides service to a hotel, motel, resort, inn, lodge, bed and breakfast or other similar accommodation with 20 or more rooms intended or designed to be used, or used, rented or hired out to be occupied for sleeping purposes.

Hybrid key telephone system means a type of multi-line telephone system designed to provide both manual and pooled access to outside lines.

Key telephone system means a type of multi-line telephone system designed to provide manual direct selection of lines for outgoing calls through keys offering identified access lines.

Master Street Address Guide (MSAG) is a table oriented database of street names and "house" number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1- 1 calls.

Mobile Position Centre (MPC) – The MPC serves as the point of interface to the wireless network for the emergency services network. The MPC serves as entity that retrieves, forwards, stores and controls position data within the location network. M
Mobile Switching Centre (MSC) means the wireless equivalent of a Central Office, which provides switching functions from wireless calls and connects to the selective router.

Multi-line telephone system means a system comprised of common control units, telephones and control hardware and software providing local telephone service to multiple end-use customers. Multi-line telephone system includes VoIP and includes

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network and premises based systems such as Centrex, private branch exchange or PBX, and hybrid key telephone systems, but does not include key telephone systems.

Multi-line telephone system operator means a person or entity that owns, leases, or rents and manages or operates a multi-line telephone system through which an end user may place a 911 call through the public switched network.

Network components means 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 911 calls, automatic number identification and automatic location.

Next Generation 911 Network (NG911) means a system comprised of managed IP-based networks and elements that augment current E911 features, the next evolutionary step in the development of the 911 emergency communications system. In stages, NG911 will provide multimedia data capabilities for PSAPs and other emergency service organizations.

Pseudo-Automatic Number Identification (pANI) is a 10-digit non-dialable number used for routing wireless and VoIP 911 calls. The pANI is also used for retrieving location information from third party database providers.

Private Branch Exchange or PBX means a private telephone switch that is connected to the public switched telephone network.

Private switch automatic location identification or PSALI means a service option that provides enhanced 911 service features for multi-line telephone systems.

Public safety answering point or PSAP means a facility assigned the responsibility of receiving 911 calls and, as appropriate, directly dispatching emergency response services or transferring or relaying emergency 911 calls to other public or private safety agencies or other PSAPs.

Primary Public Safety Answering Point or Primary PSAP means a facility equipped with ANI and ALI displays, and is the first point of reception of a 911 call. It serves the regional, national or municipal geography in which it is located, as may be determined by the managing organization.

Public switched telephone network means the network of equipment, lines, and controls assembled to establish communication paths between calling and called parties in North America.

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Residential unit means a private home, townhouse, condominium, apartment, mobile home, cabin, cottage, or residential unit in a governmental public housing facility.

Service Provider means any communications system operator to include telecommunications carriers, cable, and Internet Service Providers (ISP) that can provide an emergency communication (voice or text) to a PSAP.

School means a private or public educational institution, college, or university, whether day or residential.

School multi-line telephone system means a multi-line telephone system that provides service to a school campus, complex, or facility, including the portions of a dormitory, sleeping unit, living unit, apartment building, boarding hall, structure, or facility suitable for use as a housing facility for students, faculty, officers, or employees.

Shared residential multi-line telephone system means a multi-line telephone system that provides service to residential subscribers or end users.

Station means a specific telephone station on a multi-line telephone system.

Subscriber means a person who uses communication services.

Unit Identifier means a room name or number, unit name or number, or equivalent designation of a portion of a structure or building. For buildings or structures used, rented, occupied or hired out for sleeping or residential purposes or containing living quarters, a unit identifier means a room name or number or unit name or number.

VoIP or Voice over Internet Protocol means a type of Internet Protocol-enabled service that allows for the two-way real time transmission of voice communications and has access to the public switched network.

VSP means a Voice over Internet telephone service provider.

Workspace means an indoor area, structure or facility or a portion thereof, occupied by one or more employees during the course of employment, or other enclosed spaces where the employer has the right or authority to exercise control over the space.

15.2 Ministry Role and Responsibilities

Purpose: Establishment of clear roles, responsibilities, and powers for the management of the emergency communications system in Jamaica

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Proposal:

> **Responsible Ministry**. The Ministry of Science and Technology (Ministry) to be responsible for the establishment, operation and maintenance of the emergency communications system.
>
> **Ministry responsibilities and duties.** The Ministry should act as the executive oversight to the emergency communications system. In this capacity, the Ministry should have multiple roles and responsibilities. These responsibilities should include, but not limited to, establishing a governance agreement that should include JCF, JFB, ODPEM, and MoH, for how the system would perform, manage, define services to JCF, JFB, ODPEM, and MoH and convene and support a Governance Board and its committees.
>
> In addition, the Ministry should be responsible for the budgetary oversight and management of the emergency communications system.
>
> **NOTE:** The reference to the Ministry of Science and Technology as managing the system is for illustrative purposes only, since it is the government's prerogative, which Ministry or other agency would play this role.
>
> **Regulatory Requirement.** None

Question 15.2: what are your views on the proposed Ministry Role and Responsibilities?

15.3 Use / Abuse of Emergency Communications Numbers. Facilities & Liability Issues

15.3A   Single, Integrated Emergency Telephone Number

Purpose: To define the use of a single integrated emergency telephone number that citizens and visitors to Jamaica can use to contact emergency services agencies. These agencies are the following: the Jamaica Constabulary Force (JCF), the Jamaica Fire Brigade (JFB), the Ministry of Health (MoH) ambulance services.

Proposal:

> **Background.** A widely accepted policy that is in the public interest is to shorten the time required for a citizen to request and receive emergency aid. One of the key steps governments take to shorten the response time is by using a single, primary three-digit emergency number. The call for help should be received by a Public Safety Answering Point (PSAP) or emergency communications centre. The PSAP may also dispatch the emergency services agencies to the location of the incident.

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Using a easily remembered three-digit telephone number, through which emergency services can be quickly and efficiently obtained, will provide a significant contribution to law enforcement, fire service, and other public service efforts as it simplifies the process for the caller and speeds the notification of public safety personnel. Such a simplified means of procuring emergency services will result in the saving of life, a reduction in the destruction of property, quicker apprehension of criminals, and ultimately the saving of public funds. The establishment of a uniform emergency number should be a matter of concern and interest to all citizens.

Jamaican Regulation: Both 911 and 112 are relatively new emergency numbers in Jamaica. Best practice is to use only one number. In addition, Jamaica traditionally uses 110 for contacting fire, police and ambulance services, through an operator, and 119 for police (direct).

One Number: Establish the emergency number, either 112 or 911 as the single emergency telephone number for use in communications for all emergency services.

Regulatory Requirement: Telecommunications service providers, as part of the public education efforts, should provide a clear statement on the use of the single, three-digit telephone number for all emergency services.

One Organization Responsible for system: The emergency communications system is national in scope and supports all first responder agencies: JCF, JFB, and MOH ambulance services. No agency should establish an alternative emergency number or organization.

Previously Used Emergency Numbers: All previous emergency numbers should still be available to citizens and visitors to use to contact emergency services. While people may dial 119 in an emergency, the emergency call should terminate at the Public Safety Answering Centres (PSAP).

Regulatory Requirement: Include in the single emergency number regulatory language that other emergency numbers such as 112, 911, 999, and 119 should be routed to the PSAP.

Option to Consider: For any dialled emergency number, the service providers should assure that all requests for police, fire, medical, or other emergency services received by the provider should be transferred to the Public Safety Answering Point. Such transfer should include the calling party's telephone number in American Standard Code for Information Interchange (ASCII) in a format recommended for data exchange by the National Emergency Number Association (NENA).

Discussion and Questions:

Question 15.3.1: What are your views on the proposed use of a single integrated emergency telephone number as the primary emergency number rather than the multi-number (911, 112,

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119 (Police direct) arrangement that is currently in place.?   What are the advantages and disadvantages?

Question 15.3.2: What in your view are pros and cons of retaining the proposed secondary emergency numbers without prominent visibility and especially in light of the fact ITU-T Recommendation E.161.1 calls for the use of 911 and 112 as primary or secondary emergency numbers in order to promote the desired global harmonization of emergency numbers?

15.3B Obtaining Caller Location Information

Purpose: Caller Location Information provides the approximate geographical position of a mobile device and is generated when an emergency call is made from that device. In the case of an emergency call from a fixed line telephone number, the caller's telephone number is automatically presented to the PSAP where the caller's location may be determined through a telephone address lookup based on the telephone number. The number and address information would be supplied by local telephone service providers strictly for emergency communications purposes.

The question arises, however, whether a terminating public telecommunications carrier should, for emergency calls, be permitted to pass the calling party number of the subscriber with a private listing for the purpose above. The following three paragraphs cite US experiences as cases in point[1]. The fourth paragraph highlights the EU context.

In 2013, an Order by the Consumer and Governmental Affairs Bureau of the US Federal Communications Commission granted a petition filed by an all-volunteer ambulance service organization requesting a limited waiver of a section [47 C.F.R. § 64.1601(b)] of the Commission's rules—Delivery Requirements and Privacy Restrictions—which prohibits terminating carriers from passing the calling party number (CPN) to the called party where a privacy request has been made by the caller. The Bureau concluded that granting the request, under conditions specified in the order, would better serve the public interest by allowing the petitioner to identify and locate individuals seeking emergency services when the caller has blocked the transmission of CPN. The Bureau said it believed that the public interest in ensuring the timely provision of emergency services could be promoted in that instance by granting the requested waiver without undermining any countervailing privacy interests under the Commission's rules.

The limited waiver granted is subject to the following conditions which are similar to those imposed in granting a waiver request for the National Aeronautics and Space Administration, John F. Kennedy Space Centre:

    1) CPN information will not be transmitted over the air;

2) CPN will be accessible by the dispatcher only for a limited time after providing service to a patient;

3) CPN will be retained in a secure, password-protected database;

4) CPN information will be not be transmitted to third parties;

5) The ambulance service organization will promptly report any violations of these conditions to the Commission;

6) The organization will monitor and report on the effectiveness of this waiver for its provision.

In October 2017, the commission granted a petition filed on Behalf of Jewish Community Centres requesting a limited waiver of section 47 C.F.R. § 64.1601(b) of the Commission's rules[2]. The introduction to the Commission Order states, in part:

> "1. Today, we help security and law enforcement personnel obtain quick access to blocked Caller ID information needed to identify and thwart threatening callers. We also amend our rules to allow non-public emergency services to obtain blocked Caller ID information associated with calls requesting assistance".

As published on the EENA website referenced at the beginning of section 15 of this document, the EU Directive 2002/58/EC[3] "(Directive on privacy and electronic communications) indicates that:

> *(36) Member States may restrict the users' and subscribers' rights to privacy with regard to calling line identification where this is necessary to trace nuisance calls and with regard to calling line identification and location data where this is necessary to allow emergency services to carry out their tasks as effectively as possible. For these purposes, Member States may adopt specific provisions to entitle providers of electronic communications services to provide access to calling line identification and location data without the prior consent of the users or subscribers concerned.*

Contained within the Directive is a specific reference to how certain provisions can be exempted when the purpose of the communication relates to the emergency services:

Article 10

Exceptions

Member States shall ensure that there are transparent procedures governing the way in which a provider of a public communications network and/or a publicly available electronic communications service may override:

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(a) the elimination of the presentation of calling line identification, on a temporary basis, upon application of a subscriber requesting the tracing of malicious or nuisance calls. In this case, in accordance with national law, the data containing the identification of the calling subscriber will be stored and be made available by the provider of a public communications network and/or publicly available electronic communications service;

(b) the elimination of the presentation of calling line identification and the temporary denial or absence of consent of a subscriber or user for the processing of location data, on a per-line basis for organisations dealing with emergency calls and recognised as such by a Member State, including law enforcement agencies, ambulance services and fire brigades, for the purpose of responding to such calls.

It should be noted that as mentioned previously, the transposition of this Directive and the implementation of the transposed legislation may differ from Member State to Member State."

Proposal:

Every device capable of connecting to the emergency communications system should be able to provide Caller Location Information. The location information or telephone number should be provided as the call is presented to the emergency call centre representative.

Regulatory Requirement: The location of the caller should be provided to the PSAP as well as the caller's telephone number.

Discussion and Questions:

Question 15.3.3: What are your views on the proposed methods of obtaining caller location information?

Question 15.3.4: Should access to blocked Caller ID information be permitted for calls to emergency service numbers? Why or why not?

15.3C Treatment of Prank/Hoax Calls and the Reporting of False Information

Purpose: Prank or hoax calls to emergency services are common across jurisdictions; some are criminalized in specific circumstances. The making of a false alarm, complaint, or otherwise knowingly reporting false information, using the emergency communications system, that potentially could result in the dispatch of emergency services personnel, should subject the caller to penalties as provided by law.

Regulatory Requirement: None Required.

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15.3D Treatment of Other Offences Involving Emergency Communication

Purpose: Unlawful interference with public safety communication will attract penalties and should include physically tampering with or otherwise rendering inoperable any transmitter, receiver, transceiver, tower or antenna, or any cable, telegraph or telephone line, or equipment, wire, fibre, pole, computer equipment, telecommunication switch and dispatching equipment used for public emergency communications.

Regulatory Requirement: None Required.

Discussion and Questions:

Question 15.3.5: What are your views on the treatment of offences involving Emergency Communication?

15.3E PSAP Liability Exemption

Purpose: The Ministry, Board and its operating units should be declared exempt from any liability from system failure or staff performance, except in cases of gross negligence or similar infraction. PSAPs respond to thousands of emergency calls daily. PSAP personnel and the organizations face exposure to potential legal liability. In 2003, California's Supreme Court ruled that "there is no statutory provision declaring or defining a public agency's duty of care with respect to handling 911 emergency calls"[4]**.** Therefore, 911 centres and staff in the state are exempt.

From other sources: "No person involved in the provision of service who in good faith receives, develops, collects or processes information for the 911 databases, relays, transfers, operates, maintains or provides services or system capabilities, or provides emergency 911 communications or services for ambulance, police and fire departments, or other public safety entities, shall be liable for damages in any civil action for any act or omission that results in death, injury or loss to person or property unless such action or inaction constitutes gross negligence or an intentional tort".

Regulatory Requirement: None

15.3E Service Provider Liability Exemption

Purpose: Service Providers to be declared exempt from any liability from system failure or staff performance, except in case of gross negligence.

Liability legislation should not use language that specifies the type of service provider providing access to emergency communications services. Liability should be equally applicable to all service providers involved in the provision of emergency communications services. Liability legislation should not be limited to specific forms of communication (e.g., "voice"). Liability

should be technology neutral and equally applicable to video, text, telematics, and other developing communications technologies.

Similarly to the Liability for PSAPs and its employees: "No person involved in the provision of 112/911 service who in good faith receives, develops, collects or processes information for the 911 databases, relays, transfers, operates, maintains or provides 112/911 services or system capabilities, or provides emergency 112/911 communications or services for ambulance, police and fire departments, or other public safety entities, shall be liable for damages in any civil action for any act or omission that results in death, injury or loss to person or property unless such action or inaction constitutes gross negligence or an intentional tort."

Regulatory Requirement: None.

Discussion and Questions:

Question 15.3.6: Do you agreee with the proposed liability clauses? If no, please state the reasons and propose appropriate alternative considerations

15.4 Emergency Communications System Governance

Purpose: Establishment of a governance agreement and structure for setting policy and managing the emergency communications system and coordinating among the primary stakeholders. This section addresses governance issues associated with establishing a multi-agency emergency communications system and operation. The governance agreement should provide a set of policies and procedures that will support emergency call handling and dispatching for each first responder agency as well as support the future needs of the system and the public's for a responsive emergency system.

Proposal:

> **Background:** Governance is pivotal to operable and interoperable emergency communications. Experience has shown that a robust governance agreement and structure establishes and maintains a central coordination point (or body) for efforts among a variety of public safety stakeholders to address challenges in a unified manner. The presence of an active, transparent, multi-disciplinary, and multi-functional governance body can foster relationships, collaboration, and information sharing to better balance fiscal, technological, and policy-driven public safety needs. Formalizing the governance structure with articulated roles and responsibilities, and with balanced representation, enables public safety officials to make informed decisions in planning, operations, funding, training and exercises, and equipment acquisition in regard to shared systems and operations.

> **Establish an Independent Emergency Communications Agency.** The term "independent" is employed as meaning not managed by a public safety agency such as the police, fire or

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emergency medical services. Internationally, managing public safety emergency communications operations and system by an independent agency is widely accepted as a best practice. The practice is based on identifying and building the core businesses of providing emergency services. <u>Emergency communications is a recognized profession separate from policing, firefighting, etc. and has differing core business functions that need its own management and structure</u>, while continually providing high level of service to the emergency services: police, fire and emergency medical.

Establish the Agency as a Service Organization. The emergency communications agency should serve all public safety agencies as customers. The agency should collaborate with the JCF, JFB, Health Ministry, and ODPEM on strategic and tactical needs to enhance emergency response across all services. Other agencies such as NWA and NGDD could be candidates for participation.

Establish Agency Authority. The agency should have the authority to undertake the following role and responsibilities:

Emergency Communications Agency Authority	
1	Coordinate emergency communications service networks that include parish, regional, and national systems.
2	Coordinate and oversee the development and implementation of a national emergency communications plan. Issues that are included in the plan should include the development of national emergency 911 networks, coordination with JFB, JVF, MoH and other stakeholders, and the adoption of industry standards and requirements, and best practices. The plan should also include quality of service requirements to specify uniform, minimum levels of emergency communications service that should be consistently provided across Jamaica.
3	Function as national coordinator of GIS data sources used by the emergency communications system.
4	Manage the operation of a national emergency services IP network.
5	Convene and coordinate emergency communication system planning among public partners and private sector services providers (wireline, wireless, VoIP, Internet, cable, point-of-sale retailers, etc.). Such coordination may involve planning processes as well as infrastructure development, and resource sharing and management.
6	Provide, as directed by the Ministry, the technical resources to parliament during legislative sessions for any issues related to or affecting emergency communications including system operations, roles and responsibilities and funding needs.

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	Emergency Communications Agency Authority
7	Collect and distribute data from and to PSAPs, service providers and emergency services providers regarding the status and operation of the components of the national emergency communications system.
8	Require, coordinate, oversee, and limit data collection and data distribution, and to ensure that data collection and distribution meets legal privacy and confidentiality requirements. These data should be protected in accordance with existing governmental statutes.
9	Define and require specific outcomes and levels of service such as call response times, data sharing capabilities, etc.
10	Determine network design standards and requirements needed to ensure that local and regional 911-type networks can communicate with each other and share information seamlessly.
11	Identify standards and requirements that should address emergency medical dispatch (EMD) in coordination with the Ministry of Health
12	Responsible for standards and requirements for PSAP staffing.
13	Develop and implement a quality assurance program internally, and shall monitor PSAP compliance with technical and operational standards, requirements, and practices.
14	Establish and implement ESInet performance and security testing protocols, in coordination with the Ministry.

15.4.1 Governance and Best Practices

As suggested above, international best practices related to managing the multi-party emergency communications system utilizes a governance agreement and governance structure. The governance agreement defines the roles, responsibilities and forms of cooperation of all the parties. The structure enables the Ministry and the multi-agency governing Board to implement and manage the system; it defines the management oversight, reporting, budget, staffing and performance metrics for operating the system.

The following sections presents a conceptual recommendation for a governance framework to support an emergency communications operation. The framework should ensure the proper establishment and continuous improvement of the relevant emergency access service including its design, development, operation and promotion, the setting of standards as well as the monitoring and measuring of performance.

15.4.2 Purposes of the Governance Agreement and Structure

In summary, the Governance Agreement and Structure:

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- Establish formal agreement between parties and manage the implementation of the agreement.
- Define the roles and responsibilities of the parties to the agreement.
- Create a structure to manage and implement the agreement.
- Document capital and operating cost allocation method and define repayment methods, when necessary.
- Manage the ongoing operations among the partners through an operating agreement.

Governance Agreement. The Governance Agreement should describe the role and responsibility of the Ministry in overseeing the emergency communications system and with an Emergency Communications Policy Board. The Agreement should also describe the role, responsibilities and duties of the Board, reporting relationships and roles of each participant.

Developing and implementing an effective formal governance agreement requires strong leadership; leadership to bring together the key agencies responsible for emergency response and communications with the public. A major challenge, from international experience, is getting the primary agencies to work collaboratively, since they primarily work in their individual silos, driven by their specific missions and demands from the public for their services. Public safety after all is a team sport that is best served by full collaboration among the key players—police, fire, emergency medical services and emergency management.

Governance Structure. A key element of the governance agreement is the creation of an operational and management structure to provide authority to participants for administration and management. The governance structure shows the operational and management organization that should become applicable on the specified effective date. The structure also identifies a number of administrative functions/services and supporting agreements relating to:

- Development and Maintenance of Operating Policies and Procedures.
- Budget and Finance.
- Facility Management.
- Public Information.

15.4.3 Proposed Key Elements of a Governance Structure

The proposed governance structure presents the reporting relationships between the Ministry, Board and Operating Management and should involve the following:

- **A Policy Board** of senior representatives of stakeholder agencies—including MST and MOH Permanent Secretaries, JCF and JFB Commissioners. The Board should be responsible for strategic planning, budget approval, agency performance evaluation and the appointment of a General Manager of the emergency communications system.

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- **An Operations Committee**—The Committee should report to the Board; address day-to-day communications and operational changes required by JCF, JFB, ODPEM, and MOH Establish performance metrics for supporting JCF, JFB, ODPEM, and Health for call taking and dispatch services.
- **The Emergency Communications System Management**—should comprise a General Manager or Executive staff managing the operations and reporting to the Board.
- **Use and Management of Funding:** Role of Board in managing the sourcing and disbursement of funds.

The following graphic is an example of a high-level governance structure and is for illustration purposes only.
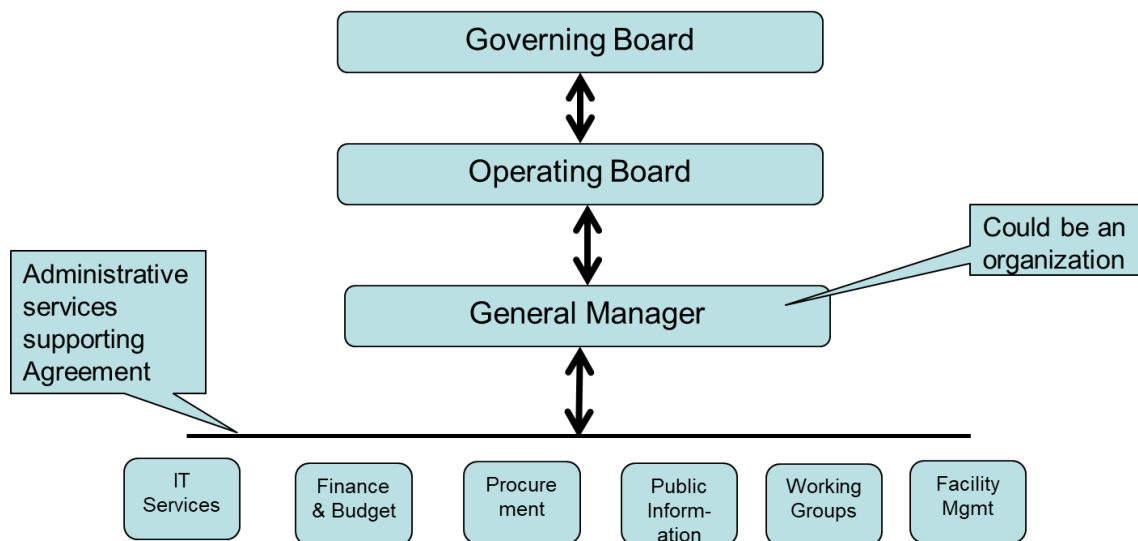
Regulatory Requirement. None Required

Discussion and Questions:

Question 15.4.1: What are your views on the current emergency call taking and dispatching governance or cross-agency coordination processes and related technologies?

Question 15.4.2: Do you agree with the use of a multi-agency governance structure to manage emergency communications in Jamaica? Why or Why Not?

Question 15.4.3: What practical problems do you foresee? How would you propose to overcome them?

Question : 15.4.4 If you disagree, what alternate method(s) do you propose for managing the emergency communications system and operations across multiple agencies?

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15.5 Emergency Communications Funding Source

Purpose: Funding an emergency communications system has several elements that need to be addressed. These include the initial capital funding to build the system at one time to insure integration and currency of technology. Second is the ongoing costs of operating and maintaining the system.

Proposal:

The Jamaican government may consider engaging in a third party financed Public Private Partnership (P3) relationship to build and manage system. It that case, it should consider what language to be included in the legislation.

On the other hand, the government may consider building the new system with bond or operating funds.

The following possibilities may be considered:

- Potential Repayment and Funding Sources:
    - Emergency call telephone surcharge for wireless, wireline, broadband access, and VoIP phones.
    - Hotel/Tourism Tax.
    - Universal service obligation fund commitments.
    - National government budget transfers.
    - Pledges of future payroll taxes.
    - Real estate income taxes.
    - Vehicle taxes.
    - Vehicles license and registration fees and traffic fines.
    - Prepaid wireless phones.
- Surcharge Collection and administrative fees.

    Regulatory Requirement: A fee could be collected for each device capable of connecting to a PSAP. The fee could be collected on a monthly invoice, a one-time charge for pre-paid or by other means as defined in legislation. The requirement could also state to what government agency the fees should be remitted and the period of payment.

15.6 Establishing and Managing an Emergency Communications Trust Fund

Purpose: Best practices suggest that making emergency communications system and services subject to the ebbs and flows of government budget availability will only increase risks to the

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system and the citizens who rely on it. To collect, disburse and protect the funds collected to support emergency communications services, the establishment of an Emergency Communications System Trust Fund is recommended.

Proposal:

Establishing a Trust Fund that would collect and disburse the funds only for the emergency communications system and operations.

What would Fund Management look like?

- **Disposition of Funds**—Primary disbursement of funds would serve to support the emergency communications systems, staffing and operations. In addition, the Board could use a grant process that would provide funding for specific systems such as portable radios and mobile data devices for first responder agencies. The grant process would require each agency to prepare and submit a proposal for funding. Management controls should be used to manage the grant process, such that the proposals should be reviewed and prioritized by the Board for funding, based only on available funding after the emergency communications system has been fully funded.

- **Disbursement of Funds to Service Providers** for approved costs for providing the emergency communications service. These could include administrative fees to cover business' costs for collecting funds.

- **Free emergency calls** meaning that each individual emergency call is not charged to the caller. This is currently a statutory provision in Jamaica.

- **Audit of funds** and collection of funds from sources

- Unused funds retainage

Regulatory Requirement. None Required

Discussion and Questions:

Question 15.6.1: Do you agree wth the proposed funding philosophy for Emergency Communication in Jamaica? Why or why not?
What other, if any, additional or alternative funding considerations would you propose?

15.7   Audit of the Emergency Communications Trust Fund

Purpose: Establishment of a formal means for auditing the fund and disbursements, etc.

Proposal:

Requirement could include-

- Authorizing Body: Ministry or Board?
- Frequency of Audit.
- Auditor description and scope: Engage an independent, third-party auditor for conducting the audit. The auditor will receive, maintain, and verify the accuracy of any and all information, including all proprietary information, that is required to be collected, or that may have been submitted to the Board by Service Providers and the accuracy of the collection of the emergency communications service charge required to be collected.

Regulatory Requirement. None Required.

15.8   Secondary Emergency Back-Up Numbers and Non-Emergency Numbers

Purpose:

Background: In the event that callers cannot call directly to the PSAP, other telephone numbers can be used to allow people to call local police and fire stations, etc., for emergency services. In addition, it is common practice in the United States and Canada to have a non-emergency public safety telephone numbers for residents and visitors to call for non-emergency situations. Examples of public safety non-emergency calls include loud noises in park at night, broken traffic street lights, or requests for insurance documents for a past crime.

Proposal:
- Restrict secondary emergency telephone numbers to police, fire, emergency medical calls that will result in a dispatch of resources.
- Limit the quantity of Secondary emergency numbers and use of non-emergency numbers
- Restriction on automatic alarms and automatic alerting devices connecting to emergency communications network

Regulatory Requirement. None Required

Discussion and Questions:

Question 15.8.1: Do you agree with the proposals on Emergency Back-Up Numbers and Non-Emergency Numbers?

Question 15.8.2: Do you think that the provision of such numbers should be the responsibility of the respective emergency agencies?

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Question 15.8.3: What are the potentials for public confusion in the establishment of such numbers as a formal requirement and how might such confusion be averted?

15.9   Methods of Response to Emergency Calls

Purpose: The receipt of initial calls is, in most instances, the most critical (that is, requiring expeditious evaluation/determination) aspect of emergency communications.

At this stage, the management of an emergency incident is carried out in two phases – call handling and dispatch; the latter involves the assignment of available emergency response apparatus and personnel to the incident. This can be accomplished by several methods which provide appropriate and effective operational and procedural means of receiving and responding to requests, through a PSAP, for emergency services.

Proposal:
   The emergency telephone system should be designed to have the capability of utilizing the following two methods of response to emergency calls:

1. The **direct dispatch method** which refers to the method whereby the PSAP serves a joint function, that is, call handling and dispatch are performed at the same facility.

2. The **transfer method** is employed where the PSAP is designed for call handling only. The call takers receive telephone requests for emergency services and immediately transfer law-enforcement emergency calls, for example, to the appropriate police emergency call centre for dispatch, etc., as soon as the nature of the emergency and/or the location of the caller are identified.

   Regulatory Requirement. None Required

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15.10 Emergency Call Receipt for Hearing Impaired Persons

Purpose: Establish an obligation for the PSAP and Service Providers to provide the technical means of receiving communications from the hearing and speech impaired community in Jamaica as well as visitors.

Proposal:

- **Use of "Text-to-911" or "Text-with-911"**. Text-to-911 is the ability to send a text message to 911-type emergency call centre representatives from a mobile phone or device. This ability is useful for deaf and hard of hearing consumers and for anyone who is unable to make a voice call in a dangerous situation. Based on the number of mobile phone users in Jamaica, text would be an optimal solution versus using relay services or TTY/TDD equipment.

- Consideration may be given to rules requiring all wireless Service Providers in Jamaica to deliver emergency texts to call centres that request them. Text providers could be required to deliver a solution to the PSAPs within six months of the relevant legislation/regulation—which should apply to all providers of interconnected text messaging applications. Note:

  - The US Federal Communications Commission requires all wireless Service Providers of text messaging applications in the United States to deliver emergency texts to call centres that request them. If a call centre requests text-to-911 service, text-messaging providers must deliver the service in that area.

  - The Canadian government has established a nation-wide requirement for Text-with-911 services. The Canadian system requires registration with a carrier and is focused on persons with disabilities.

- **Fee for using Text to 911**. There should be no fee from Service Providers for delivering a text to the PSAP

  Regulatory Requirement. Require all wireless Service Providers of text messaging applications in Jamaica to deliver emergency texts to PSAPs. If the text message is not received by the PSAP, an automatic "bounce-back" message should advise the sender to contact emergency services by another means. Bounce-back messages are intended to minimize the risk of mistakenly believing that a text to 911 has been transmitted to an emergency call centre.

  Any "Text to 911" should be provided by all Service Providers at no charge to the sender.

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Discussion and Questions:

Question 15.10.1: Do you think that the immediately foregoing proposals adequately address the needs of hearing-impaired persons? What other measures would you propose and why?

15.11 Service Providers Responsibilities

Purpose: To present the policy and legislative issues associated with the changing nature of communications transport and handling of calls for emergency services.

Proposal:
- Use of Next Generation 911 (NG911) call routing and management standards, Use of an IP technology platform.

- Service Provider responsibilities should include:

  o Providing caller location information with the voice call for wireline and wireless calls

  o Providing interconnection between their network and the government's NG911 Emergency Services IP Network (ESInet) for all emergency calls at no cost to the government or the caller

  o Transferring any emergency call inadvertently answered by a customer care centre to the PSAP

Regulatory Requirement. These are the most probably regulatory policy issues:

- **Call Routing:** Service Providers should route calls directly to the government's NG911 data centres

- **Caller location**: Service Providers should provide caller location data for wireline, wireless and Voice over IP (VoIP) telephones. Caller location should include ANI, and ALI for wireline telephones, pANI and latitude / longitude location of serving cellular tower and customer provisioned location for VSP calls.

- **No Opt-Out of Service Option**: Service Providers should be required to not allow customers to "opt-out" of the emergency communications service.

15.12 Certification of Emergency Communications Tele-communicators

Purpose: To define the level of training/certification required for PSAP personnel to perform emergency call taking or dispatching services.

Background: A Tele-communicator serves as the central coordination point between police, fire, emergency medical services and the public. The Tele-communicator must

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quickly obtain all of the important facts related to an incident and dispatch the necessary police, fire, or emergency medical service units.

Tele-communicators must be able to work in a high-energy environment and be willing to serve as the communications lifeline for the public and criminal justice personnel; tele-communicators rely on computers to track incidents, monitor the law enforcement officer's status and retrieve criminal, vehicle and driver's information from state and national databases. They use two-way radio to dispatch calls for service, coordinate emergency and non-emergency police activities and provide vehicle and driver information to law enforcement officers.

Proposal:

> **What is required?**
> - Who manages the training?
> - Who certifies the tele-communicators?
> - Is achieving certification a pre-requisite for employment?
> - What training is required for certification? Courses could include:
>   - 40 hours of combined classroom and on-the-job work, covering such topics as the local streets and geography, map reading, how to use the radio and operation of the software for Computer-Aided Dispatch and 911 telephony (911 CPE), for example.
>   - Additional training may include instruction in the handling of child abductions, suicide threats and other unique emergencies.
>   - Some operators receive further training that qualifies them as emergency medical dispatchers, and they can then give medical advice over the phone.
>
> **Regulatory Requirement**. None Required

Discussion and Questions:

Question 15.12.1: What would you consider to be the public benefits of Certification of Emergency Communications Tele-communicators as proposed?

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15.13 Multi-Line Telephone Systems (MLTS)

Purpose: Need to include MLTS systems as a regulated system in the emergency communications legislation to address caller location information.

Proposal:

MLTS location information. MLTS systems are primarily used at places of employment, schools, and hotels and resorts. Most MLTS/PBX systems enable the digits 911 to be dialled and routed to a Public Safety Answering Point (PSAP). However, the vast majority of these systems do not provide granular location information with the 911 call to enable emergency responders to know the actual location of the emergency. In many instances, a call from the 12th floor of a large office building may only provide the street address of the building. If the caller is unable to provide his or her location and no one else is available to provide assistance, such a lack of location information can prove fatal. Fortunately, there are technical solutions to this challenge that are currently being offered by numerous service providers.

What would change? At the minimum, each operator of a shared residential, government agency, business, or school multi-line telephone system should transmit to the PSAP the Automatic Number Identifier (ANI) and the one ANI and one Automatic Location Identification (ALI). In the case of a residential premise, ANI/ALI should be provided for each residential unit. In the case of a government agency, business, or school, each operator should transmit to the PSAP the street address and an ERL (Emergency Response Location) identifier that provides at least the building and floor location of the caller.

Example: US Kari's Law-- In the US, Kari's Law legislation requires direct dialling for 911 calls made on multi-line telephone systems (MLTS) frequently used by hotels, offices and other enterprises. Most US hotel chains have already complied.

Regulatory Requirement. Prohibition of businesses from manufacturing or importing for use in the Jamaica, or selling or leasing in Jamaica, a multiline telephone system unless it is pre-configured to allow users to directly initiate a call to the national emergency communications telephone number (without dialling any additional digit, code, prefix, or post-fix, including any trunk-access code such as the digit "9") from any station equipped with dialling facilities. Also:

- Businesses should be prohibited from installing, managing, or operating multiline telephone systems without such a direct call configuration to the national emergency communications telephone number.

- Businesses installing, managing, or operating such systems for use in Jamaica should configure the systems to provide a notification to a central location at the facility where the system is installed, or to another person or organization regardless of location, if the system is able to be so configured without an improvement to the hardware or software.

15.14 Public Education

Purpose: Education of the general public on emergency communications issues.

Proposal:
- Determination whether public education should be legislated or a task of the Ministry and Board or solely the responsibility of the Board.
- Determination of public education approach regarding the initial roll out of the use of the new single number
- Determination regarding the source of funds for public education

Regulatory Requirement: None Required

15.15 Restrictions on Use of Caller Information

Purpose: To establish assurance that emergency assistance can be provided as quickly as possible following receipt of an emergency call, and prevent the purpose of the call, telephone number or location information from being subject to misuse.

Background: Protecting the personal information associated with an emergency services call to a PSAP can be essential to building public trust. Similarly, restricting that information to the agencies and personnel that will need it to be able to respond to the fire, crime of medical emergency improves the ability of emergency services to perform their roles.

Best-practice: An example of best-practice in protecting the personal information associated with an emergency services call is in an amendment to New Zealand's Telecommunications Information Privacy Code 2003 Amendment No 5 which came into force on 2 March 2017. (Click the Document object immediately below to open PDF document).

TIPC-Amendment-No
-5-Information-Paper-

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The amendment which "supports a new system for sharing emergency caller location information which will be used by emergency service providers to more quickly and accurately respond to emergency calls", provides as follows:

- Emergency caller location information ("ECLI") can only be generated by an emergency call. The automated sharing of location information cannot be enabled for any other purpose.

- Only agencies which provide emergency services are permitted to collect and use ECLI (in addition to agencies involved in providing information or operating the system). The Schedule sets out a process for authorising new agencies to receive this information.

- The agencies involved may only collect, use or disclose ECLI for a defined set of permitted purposes, all related to responding to an emergency call.

- The agencies involved may retain ECLI only for as long as they need it to achieve these defined purposes.

- The Schedule creates a general duty of transparency, to ensure that the public understand and have confidence in the system.

- Any agencies which collect, retain and use ECLI must take reasonable steps to ensure that they do so in compliance with the requirements of the Schedule.

- A level of accountability is expected from the agencies involved, to demonstrate compliance and provide the Commissioner with confidence that the Schedule is operating effectively to enable the system while protecting individual privacy.

Proposal:

The Following are considerations in determining eligibility for access to caller information:

- Who should have access to this information? For instance, should information supplied by Service Providers to the PSAP employees or contractors who have access in regard to the design, development, implementation, operation or maintenance of the system be provided or be limited to the extent necessary to permit the design, development, implementation, operation or maintenance of the system.

- What are the Service Providers' liabilities related to the provision of caller information?

- What is the liability to the government to maintain the information in confidence and to ensure that any PSAP employees, contractors or emergency service agencies, who have access to the information, maintain the information in confidence?

- Should the legislation specify the responsibility of the Minister to designate the

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person(s) who may have access to the information?

- Use of information for financial gain. No person employed by the PSAP or to its employees, agents or contractors shall use that person's position to benefit a company, corporation or agency with which that person is associated in a financial capacity.

Regulatory Requirement. Caller information should be maintained as confidential and distribution or sale outside of the public safety agencies should be prohibited.

15.16 Establishing Regulations

Purpose: To expand on the government's regulatory authority on issues specific to emergency communications.

Background: Emergency communications systems and operations present concerns that require regulatory guidelines and oversight.

Proposal:
The following topics could require regulatory oversight:
- Use of technical standards for public safety systems.

- To which emergency service agencies does the law apply?

- Requiring the owner or occupier of a residence or business location to post the applicable address number on the building.

- Providing the size, location and design of address numbers to be posted on residences and business locations.

- Prescribing the minimum and maximum fines to be paid for a violation of the regulations.

- Establishing any matter necessary or advisable for the establishment of fees to recover costs for any services or materials provided in the course of the administration of this Act or the regulations.

- Defining any word or expression used but not defined in the legislation.

- Addressing any purpose necessary or advisable to carry out the intent and purpose of the legislation.

Regulatory Requirement. None required

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Appendix A

GLOSSARY OF TERMS	
TERM/ACRONYM	**DEFINITION**
24/7	24 hours a day, 7 days a week, all 365 days of a year
A/V	Audio/Visual
AED	Automated External Defibrillator. A portable electronic device that automatically diagnoses potentially life threatening cardiac arrhythmias and is able to treat them through defibrillation allowing the heart to reestablish an effective rhythm
ALI	Automatic Location Identification. Phone number data provided via the 9-1-1 system
ALS	Advanced Life Support
ANI	Automatic Number Identification. Phone number location data (i.e., street address or latitude/longitude) provided via 9-1-1 system
APCO	Association of Public Safety Communications Officials. PSAP, CAD and 9-1-1 industry leading organization
ASA	Average Speed of Answer. 9-1-1 industry term for aggregate measurement of the time required to answer 9-1-1 calls into a PSAP
AVL	Automated Vehicle Location
BCF	Border Control Function
BLS	Basic Life Support
CAD	Computer Aided Dispatch System
CCTV	Closed Circuit Television System
CFS	Calls for Service. Police, Fire and EMS workload generated by citizens, self-initiated activity and other means
COMPSTAT	COMPuter STATistics. The name given to the New York City Police Department's accountability process and has since been replicated in many other departments
CPE	Call Processing Equipment—Same as CTI above
CTI	Computer Telephony Integration system. Intelligent computer interfaced phone system that supports 9-1-1 and administrative call processing
Data Centre	Secure facility/room where mission critical computer equipment is stored and maintained
ECC	Emergency Communications Centre

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GLOSSARY OF TERMS	
TERM/ACRONYM	**DEFINITION**
ECRF	Emergency Call Routing Function
EMD	Emergency Medical Dispatch
EMS	Emergency Medical Service
EOC	Emergency Operations Centre
EOF	Economies of Force - Operations management perspective regarding the judicious employment and distribution of forces to complete an objective
EOS	Economies of Scale - Long term Return on Investment concept related to reductions in unit cost as the size of a facility, or scale, increases
ERL	Emergency Response Location
ESRI	Company providing Geographic Information System (GIS) software and geo-database management
ESRP	Emergency Services Routing Proxy
EVDO	Evolution-Data Optimized or Evolution-Data only is a telecommunications standard for the wireless transmission of data through radio signals
FBR	Field Based Report
GIS	Geographic Information System/Mapping application
GPS	Global Positioning Satellite. Used for AVL and GIS
HF	High Frequency
IM	Information Management
IMA	Inter-Municipal Agreement
L & R	Logging & Recording System. Utilized to record all 9-1-1 and emergency telephone lines plus radio channels
LAN	Local Area Network
LIS	Location Information Server (Database)
LNG	Legacy Network Gateway
Lookup	An act, process, or instance of looking something up (as in a record, listing or database)
LoST	Location to Service Translation
MCT	Mobile Computer Terminal
MDC	Mobile Data Computer
NAEMD	National Academy of Emergency Medical Dispatchers
NENA	National Emergency Number Association. NENA is the leading organization for the 9-1-1 industry

GLOSSARY OF TERMS	
TERM/ACRONYM	**DEFINITION**
NFPA	National Fire Protection Association. NFPA established public safety industry standards, such as 1221 for Emergency Communications Centres
POTS	Plain old telephone service (POTS) is the voice-grade telephone service that remains the basic form of residential and small business service connection to the telephone network in most parts of the world
PRF	Policy Routing Function
PS	Policy Store
PSAP	Public Safety Answering Point
RMS	Records Management System
ROI	Return on Investment
ROM	Rough Order of Magnitude
UCT	Unified Call centre representaive. Methodology used by PSAPs utilizing a single set of Call centre representaives for police, fire and EMS Calls for Service versus having specialized Call centre representaives for each public safety entity
UHF	Ultra High Frequently
UPS	Uninterruptible Power Supply
VHF	Very High Frequency
VTC	Video Teleconference

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APPENDIX B—NENA Draft International Affiliate Policy

International Affiliates

Authority
Art. V, § 3 of the bylaws describes Regions as including representation for "at large" mem- bers, and assigns to each Region some subset of the non-chartered areas in each ocean or continent. Art. VII,§ 3(R) requires the Board to " [.e]s tablish su ch additional policies and procedures as may be necessary for the or- derly conduct of the Association's business."

Date of Adoption
November*, 2017

Procedures

Application for Affiliate Status

An organization incorporated under the laws of a nation outside of the United States, Canada or their respective territories and possessions, which desires affiliate status may apply for that designation once it can demonstrate that it meets the following criteria:

1. The organization has adopted written objectives consistent with those of NENA.

2. The organization has established its own in- dependent non-profit corporate personality (or its equivalent under the municipal law of its nation of incorporation).

3. The organization has duly adopted bylaws, which include provisions governing each of the following topics:

   A. Membership categories and rights;
   B. Meeting requirements and frequency, including at least one (1) annual meeting;
   C. A clearly-defined geographic area;
   D. Open nomination and fair election of Officers and Directors;
   E. Titles, duties, and terms of Officers and Directors;
   F. Financial responsibility of the Organization, and its Officers and Directors; and
   G. A dues structure; and
   H. A non-discrimination clause covering each of the categories enumerated in NENA's Ethics Policy, whether or not recognized or required by the Organization's municipal laws.

4 The organization consists of at least (24) members, at least eighty percent (80%) of whom are employed by, appointed to, elected to, or retired from a government or quasi-

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government agency, or who are employed by private-sector entities under con- tract with a government authority, and who are, or have been, responsible for some aspect of des ign, promotion, construction, installation, maintenance, command, and operation of public safety emergency communication systems. This ratio must be maintained in order to continue affiliate status .

5. The organization has agreeing to the terms of this policy as a condition precedent to receiving the benefits and undertaking the obligations described herein, and which further recognizes the National Emergency Number Association, Inc., as the sole owner of its name, logo, website, publications, and other intellectual property.

6. The Organization has paid an annual affiliate fee of one-hundred (100) U.S. Dollars to the NENA Headquarters office.

Privileges & Benefits

1. The International Affiliate will be allowed to adopt and use a modified version of the official NENA logo. For example, the "9-1-1" in NENA's logo can be changed to the emergency number sequence used in the nation of the International Affiliate, or the logo can be personalized with the name of the nation represented by the International Affiliate (e.g., "NENA-Sealand ").

2. Any other use or derivatives of NENA's copyrights or trademarks may be authorized only under a license agreement reduced to writing and signed by an Officer of the organization having the capacity to do so, and by NENA's CEO.

3. The International Affiliate will be granted the right to access NENA's documents, standards, archive of publications, and/or other information. Any costs associated with translating the above-mentioned materials are the sole responsibility of the International Affiliate, and such translations may be prepared only under an express license.

4. The International Affiliate will receive two complimentary registrations to NENA Inc.'s annual conference. In exchange, the International Affiliate will provide two (2) complimentary registrations to its annual meeting or conference to the Board of Directors of NENA.

5. Members in good standing of the International Affiliate will be charged the NENA member rate for all education classes, conference registrations, or any other event or item that would be provided to NENA members at a discount compared to the amount charged to non- NENA members, so long as the Affiliate extends the same benefit to NENA members.

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Revocation of Status

Any grant of international affiliate status, the existence of the status in toto, and any privileges or benefits deriving therefrom may be suspended, revoked, or terminated by the Board at any time with our without notice. In the event of a termination , the sole remedy available to an international affiliate or any member thereof shall be the return of th e most-recently-paid $100 annual fee.

END OF CONSULTATION DOCUMENT

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[1] Federal Communications Commission DA 13-227

[2] https://docs.fcc.gov/public/attachments/DA-17-223A1.pdf

[3] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32002L0058

[4] California Supreme Court – December 20, 2013: Eastburn v. Regional Fire Protection District, S107792.

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