GLOBAL CITY TEAMS CHALLENGE

Public Safety SuperCluster

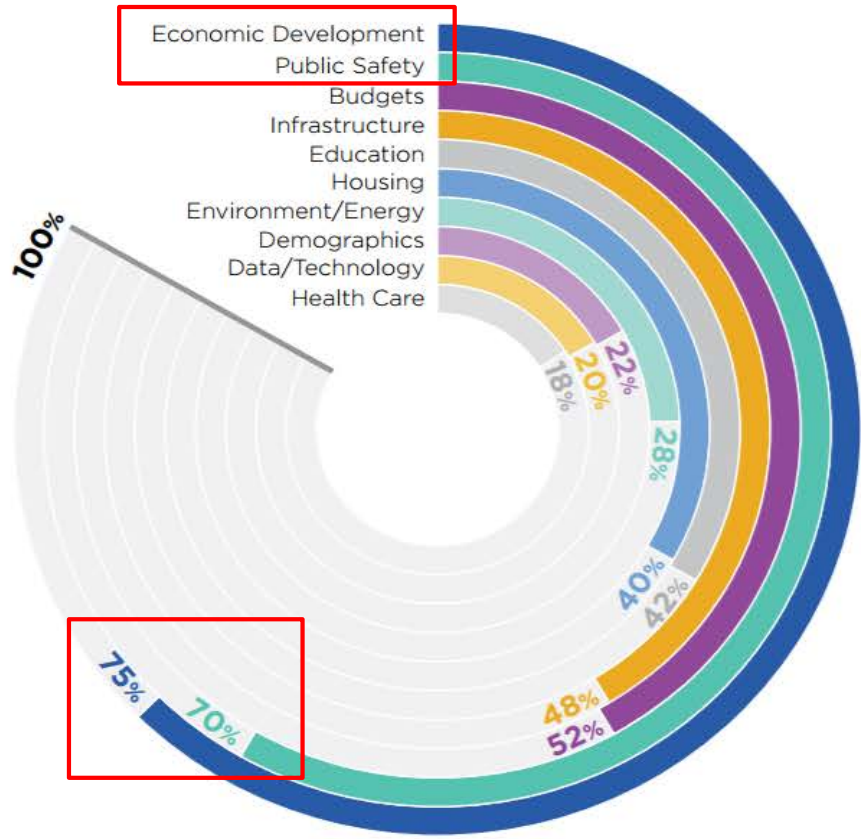**OGC®**
Making location count.

Michael Dunaway, PhD
Informatics Research Institute
University of Louisiana at Lafayette

usignite NIST GLOBAL CITY TEAMS CHALLENGE

https://www.us-ignite.org   https://pages.nist.gov/GCTC/

http://www.nlc.org/resource/state-of-the-cities-2016

Top 10 Issues

Las Vegas mass casualty shooting 1 Oct 2017

Mandalay Bay Resort and Casino

Shooter fired from the 32nd floor

Stage

Site of country music festival

http://www.cnn.com/2017/10/05/us/ las-vegas-shooting-investigation/index.html

http://www.mercurynews.com/2017/10/09/maps-napa-wildfire-santa-rosa-evacuation-area/

FLU SHOTS NOW AVAILABLE NO WAIT

GIVE A SHOT

How This Flu Season Compares With Recent Ones

SCIENCE \ SPACE

A Chinese space station is falling to Earth next year — but it's the last thing to worry about

The odds are in your favor

By Loren Grush | @lorengrush | Dec 31, 2017, 2:00pm EST

https://media4.s-nbcnews.com/j/newscms/2018_02/2290396/180111

Photos: Amtrak train derails over interstate

http://www.cnn.com/2017/12/20/us/amtrak-derailment-washington/index.html

X TIANGONG-1

Stranded travelers rested at baggage check-in. More than 1,150 departing or arriving flights were canceled. Dustin Chambers for The New York Times
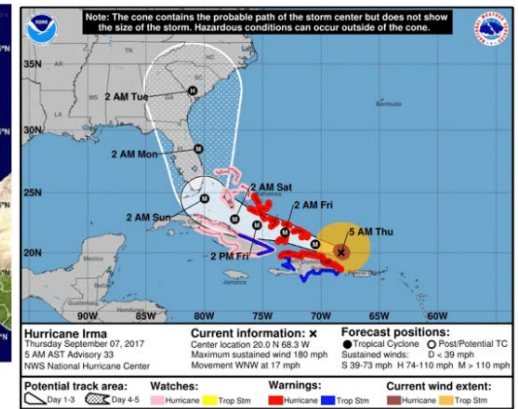
https://www.theverge.com/2017/12/31/16830890/
chinese-space-station-tiangong-1-debris-falling-to-earth

News Release
Follow us on Twitter, @georgiapower

Georgia Power

Power restored for all essential activities at Hartsfield-Jackson International Airport

ATLANTA – Dec. 17, 2017 – Georgia Power and Hartsfield-Jackson International Airport personnel have worked throughout the day today to restore power at the Airport as quickly and safely as possible. As of 11:45 p.m., power had been restored for all essential airport activities including all concourses and flight operations.

2017 Hurricane Season

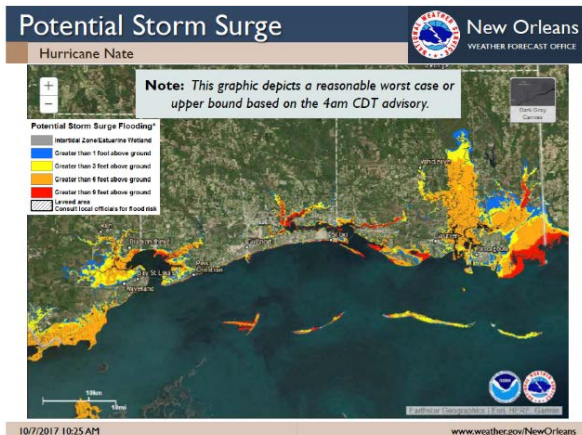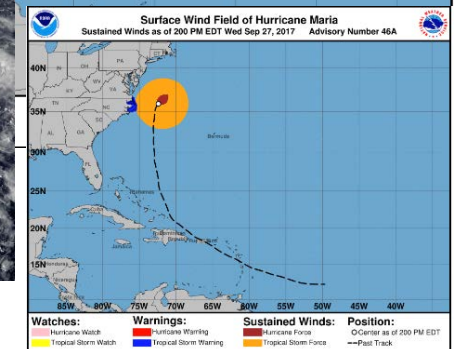## Hurricane Harvey
24-28 August
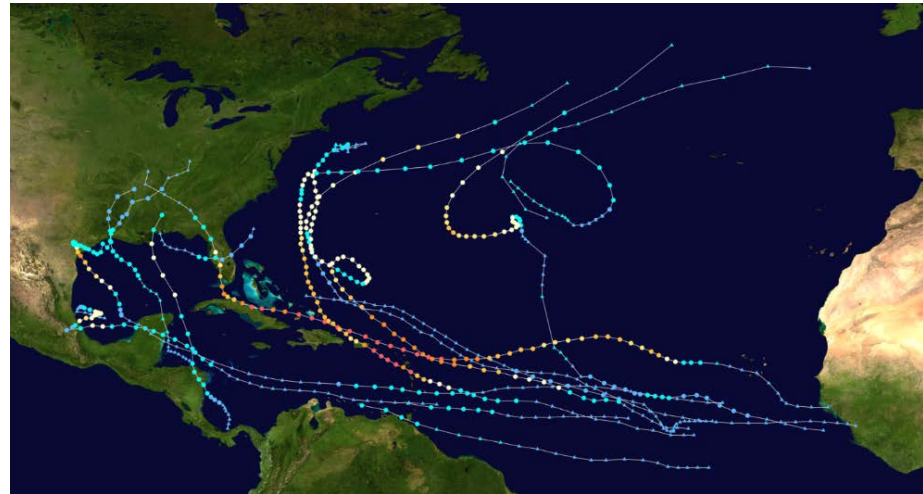
Hurricane Irma
(+ Jose and Katia)
5-10 September

Hurricane Maria
18-24 September

Hurricane Nate 4-8 October

Public Safety SuperCluster (PSSC)
Research & Development in "Smart Public Safety"

Alameda / San Francisco, CA	AI-based Emergency Preparedness
Conover, NC	GEO Fencing Predictive Policing Solutions
Denton, TX / UNT / PSU	Deployable Communications & Incident Command
Fairfax County, VA / GMU	Multi-Team Coordination & Analysis
Lafayette, LA / UL Lafayette	Louisiana Business Emergency Operations Center
Las Vegas, NV	IoT for Preparing Underserved Communities
Montgomery County, MD	Safe Community Awareness and Alerting Network
Nashville, TN	Integrated Analytics & Scheduling of First Responders
Newport News / VA Beach, VA	Storm Sense Inundation and Flood Prediction Modeling
North Central Texas COG	Smart Emergency Response System
Orlando, FL	Video Analytics for Public Safety during Special Events
Ronart / Santa Rosa, CA	Advanced Flood Warning & Environmental Awareness
San Francisco, CA	Mobile Micro-Grids for Disaster Resilience
Washington, DC	Cyber City Education & Awareness Platform
Genoa / Milan / Torino, Italy	Open Platform for Smart City Disaster Prevention
Taichung City, Taiwan	Community Traffic Control for Disaster Response
Wakayama / Nagano / Miyagi Prefectures, Japan	NerveNet Regional Resilience IoT Platform

https://pages.nist.gov/GCTC/super-clusters/
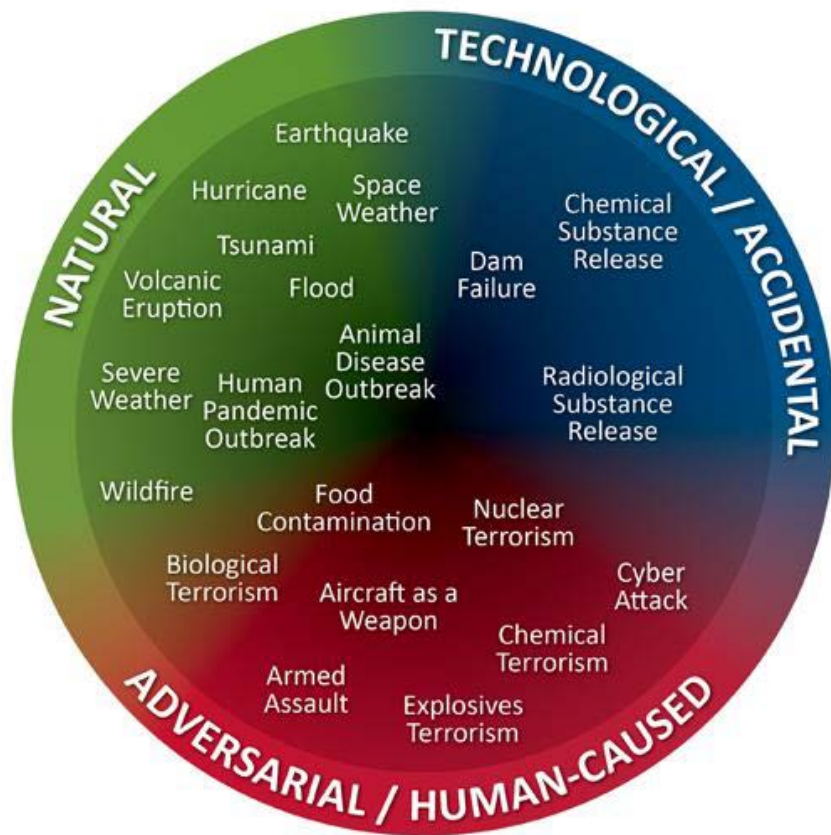
**"All Hazards" Approach
to Disaster Preparedness**

GLOBAL CITY
TEAMS CHALLENGE

**Blueprint for Smart Public Safety
in Connected Communities**

An Initiative of the Global City Teams Challenge

August 28, 2017

https://pages.nist.gov/GCTC/super-clusters/

"Whole Community Approach"
to Disaster Planning

https://pages.nist.gov/GCTC/super-clusters/

Public Safety & Response – Coordination of emergency operations among responder agencies);

Emergency Management and Preparedness – Coordination of local, regional, and federal agencies and resources across the emergency management cycle;

Disaster Recovery – Integration of policy and social, economic, and behavioral dimensions to the challenge   of post-disaster community recovery;

City Resilience – Application of advanced and emerging technologies to the broader challenges of community resilience and social cohesiveness and identity.

How to Use the Blueprint – Designing and implementing a resilient, Smart Public Safety program.

GLOBAL CITY
TEAMS CHALLENGE

Blueprint for Smart Public Safety in Connected Communities

An Initiative of the Global City Teams Challenge

August 28, 2017

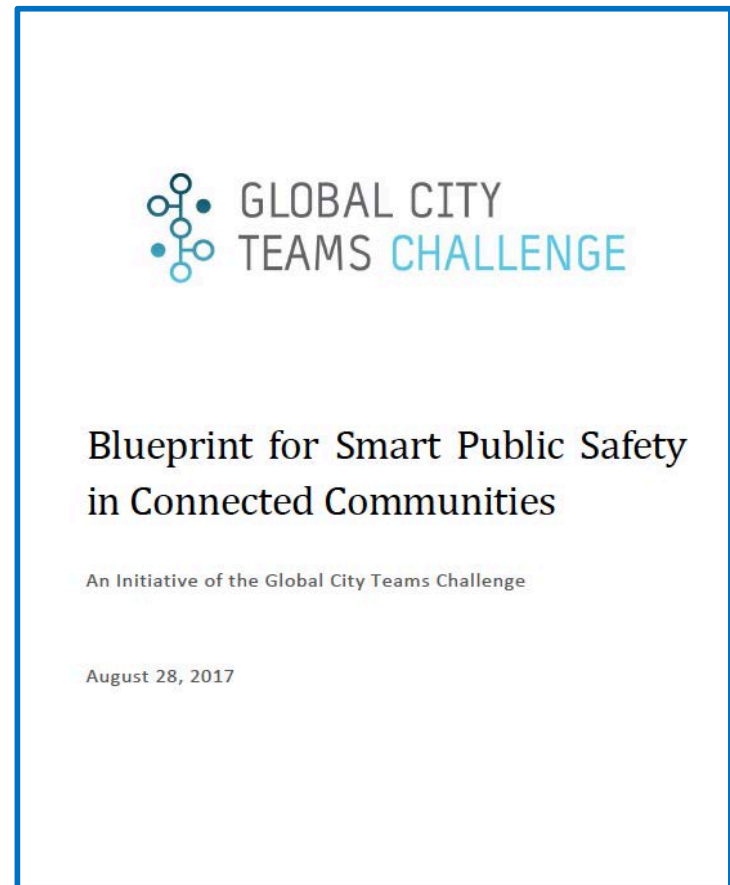https://pages.nist.gov/GCTC/super-clusters/

Comprehensive Preparedness Guide Planning Steps
FEMA Pre-Disaster Recovery Planning Guide for State Governments, 2016
https://www.fema.gov/media-library/assets/documents/128572

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Form a Collaborative Planning Team	Understand the Situation	Determine Goals and Objectives	Plan Development	Plan Preparation, Review, and Approval	Plan Implementation and Maintenance
Identify Core Planning Team	Identify Threats and Hazards	Determine Operational Milestones	Develop and Analyze Course of Action	Write the Plan	Exercise the Plan
Engage the Whole Community in Planning	Assess Risk	Set Goals and Objectives	Identify Resources	Review the Plan	Review, Revise, and Maintain the Plan
			Identify Information & Intelligence Needs	Approve and Disseminate the Plan	

The "Whole Community Approach" to Disaster Planning

Comprehensive Preparedness Guide Planning Steps

Governance	Individual Agencies Working Independently	Informal Coordination Between Agencies	Key Multi-Discipline Staff Collaboration on a Regular Basis		Regional Committee Working within a Statewide Communications Interoperability Plan Framework
Standard Operating Procedures	Individual Agency SOPs	Joint SOPs for Planned Events	Joint SOPs for Emergencies	Regional Set of Communications SOPs	National Incident Management System Integrated SOPs
Technology — DATA ELEMENTS	Swap Files	Common Applications	Custom-Interfaced Applications	One-Way Standards-Based Sharing	Two-Way Standards-Based Sharing
Technology — VOICE ELEMENTS	Swap Radios	Gateway	Shared Channels	Proprietary Shared System	Standards-Based Shared System
Training & Exercises	General Orientation on Equipment and Applications	Single Agency Tabletop Exercises for Key Field and Support Staff	Multi-Agency Tabletop Exercises for Key Field and Support Staff	Multi-Agency Full Functional Exercises Involving All Staff	Regular Comprehensive Regionwide Training and Exercises
Usage	Planned Events	Localized Emergency Incidents	Regional Incident Management		Daily Use Throughout Region

Left axis: Limited Leadership, Planning, and Collaboration Among Areas with Minimal Investment in the Sustainability of Systems and Documentation

Right axis: High Degree of Leadership, Planning, and Collaboration Among Areas with Commitment to and Investment in the Sustainability of Systems and Documentation

DHS Interoperability Continuum Elements (https://www.dhs.gov/publication/interoperability/)

Smart Public Safety Playbook development methodology

City Agency Leadership
PS, EM, DR, CR

City Use Cases based on AARs

Public Safety Community Guidelines (Continuum, NIMS, ICS)

PSAP, PSA & Public Alerts/Warnings

City-Wide Workshop: Requirements Definition

Public Safety Technology needs

Playbook Development By Focus Areas

Smart Public Safety Solution Design

City Agencies "Action Clusters"

Smart Public Safety Playbook implementation within Communities and PS Agencies

Principles for Collaboration in Smart Public Safety

- Gain leadership commitment from all agencies & communities;

- Devise the appropriate governance structure and strategy;

- Foster collaboration across disciplines through leadership support;

- Use interoperability solutions and technologies to drive collaboration;

- Obtain commitment of government to ensure policy and resource support;

- Plan and budget for ongoing updates to systems, procedures, and documentation;

- Build a program to sustain the collaboration and coordination for the long run.

Principles for Technology Insertion for Smart Public Safety

1. Identify opportunities for technology to provide just-in-time access to relevant information and decision support to improve collaborative planning and mobilize resources to speed community recovery.

2. Ensure that technology development and adoption supports current and future needs for both organization and system compatibility (adopt open technology standard to enhance an open community).

3. Provide relevant information to all citizens to ensure the preservation of community cohesion, social structures, and motivation, and to engage the talent and energy of the entire community.

4. Ensure the ability of all technology applications for data capture and analysis to improve future disaster recovery methodologies and develop a "Learning Organization" approach to community resilience.

5. Build a "Culture of Resilience" across community functions, focused on disaster recovery as a critical community capability (i.e., plan for Recovery, rather than simply for Response).

6. Develop a strong Business Case for technology investment and adoption (e.g., technologies with utility during both "Blue Sky" and "Dark Sky" conditions).

7. Develop a Safety Case that addresses opportunity costs and potential losses from a failure to invest in public safety technologies and to ensure political and financial investment in resilience strategies.
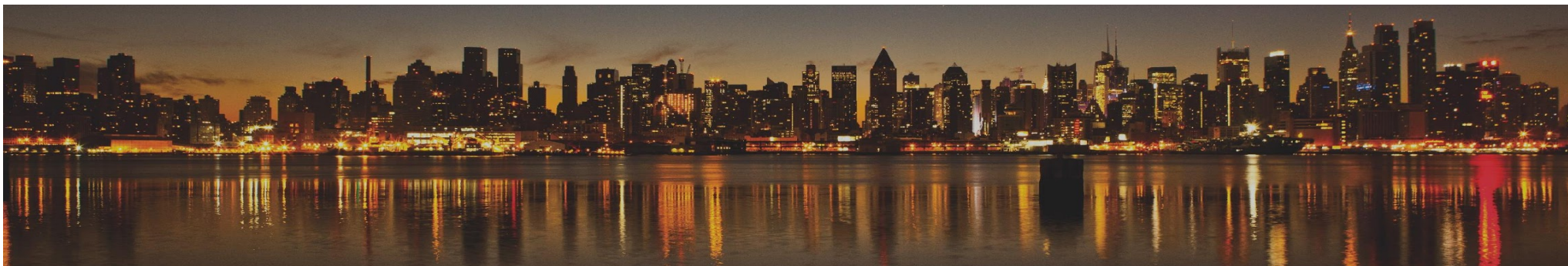
GCTC 2018 Focus: Cybersecurity and Privacy in Smart & Secure Cities

Foundation for Public Safety: <u>Trustworthiness</u>

- ➢   **Security**
- ➢   **Privacy**
- ➢   **Safety**
- ➢   **Resilience**
- ➢   **Reliability**
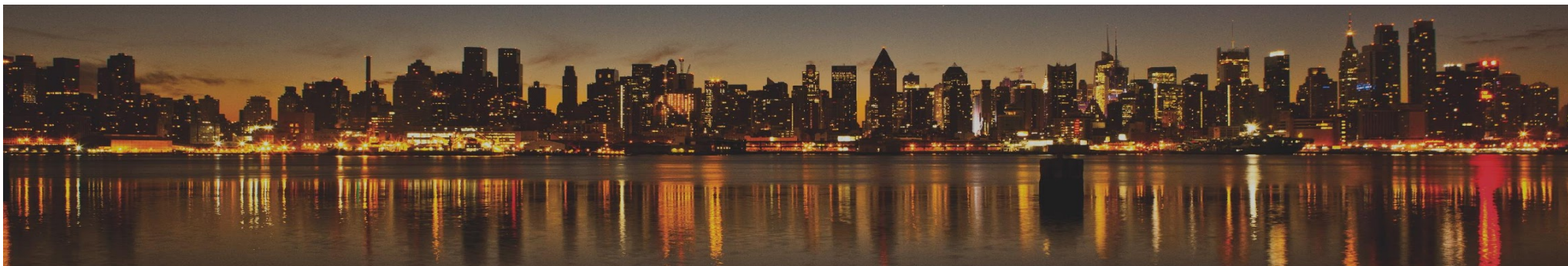
Challenges in Cybersecurity and Privacy affecting Public Safety

- **Identity management and credentialing of personnel + "credentialing of things"**

- **Public interacting with government "online" rather than "in line"**

- **Data security and assurance for technologies affecting children, families, schools, etc.**
  - **Particularly virtual/augmented reality systems**

- **Data security and assurance for collaboration between jurisdictions**
  - **Policy problem solved by a technology application**

- **Public education and awareness and definitions of "truth" in public safety context**
  - **Decision not to evacuate New Orleans during Hurricane Nate**
  - **Decision to alert the public about a possible nuclear attack on Hawaii**

- **Activating victims' mobile devices remotely during disasters**

Lastly, An Invitation:

❖ **Identify/Form GCTC / PSSC Action Cluster**

❖ **Join us at the Smart Public Safety Workshop**

Motorola Headquarters, Chicago
31 July – 01 August

Objectives
❖ **Develop the template for a City Play Book for SPS**
❖ **Define the application of Cybersecurity in SPS**
❖ **Determine future objectives & structure for PSSC**

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Questions for Consideration

- ❖ **What sensors and devices do you expect to be used in the future that are not currently deployed?**

- ❖ **If those devices collect data, what information would you want collected and in what format?**

- ❖ **How will universal wireless connectivity change the nature of Public Safety communications?**

- ❖ **Should Public Safety related data be hosted in the "Cloud" or maintained on local servers?**

- ❖ **What should be the balance between real-time data analytics and professional judgment and experience?**

- ❖ **How should the User Interface / User Experience be balanced between deployed personnel, Incident Command, PSAP Dispatch, and Agency HQ/EOC?**

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us ignite   NIST   GLOBAL CITY TEAMS CHALLENGE

Mission Statement

The NIMSAT Institute seeks to enhance the resiliency of the United States by conducting research, building public-private partnerships, and developing technologies to support the first responder and homeland security communities, and contribute to the mission of saving lives and mitigating the consequences of natural and human-caused disasters.

NIMSAT — National Incident Management Systems and Advanced Technologies — University of Louisiana at Lafayette

University of Louisiana Lafayette

"Research for a Reason"

Supply Chain Interdependency Analysis

Human Geography Mapping of Crisis Leadership Networks

Fuel Demand & Supply Prediction for Regional Evacuation

Points of Distribution (POD) location optimization

LABEOC Open for Business App piloted during DR-4277-LA

Consequence Analysis of Natural Gas Pipeline Disruptions

Louisiana Hazard Information Portal

www.labeoc.org

LA⬤BEOC
LOUISIANA BUSINESS EMERGENCY OPERATIONS CENTER
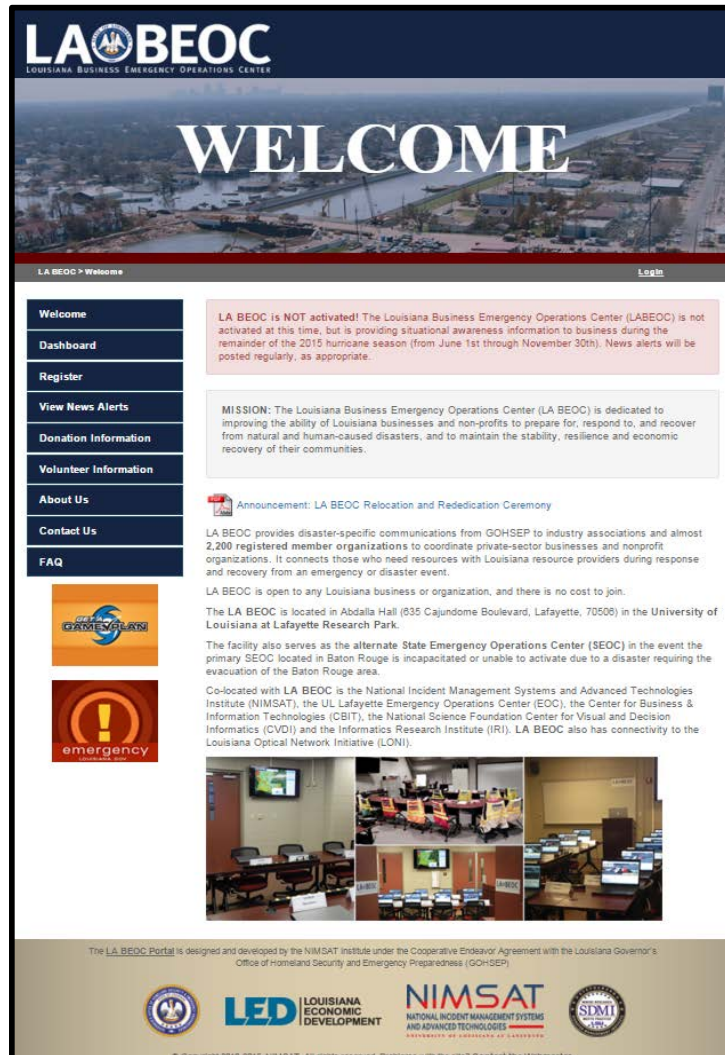
A Public / Private Sector Partnership

and Information-Sharing Portal to:

- **Establish Situational Awareness across public and private sectors**
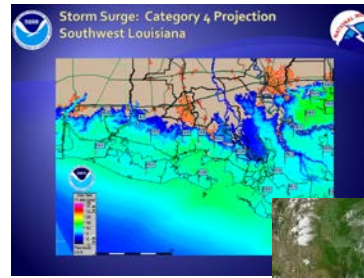- **Support State disaster recovery when public resources are exhausted**

And a resource to enable businesses to

- **PROVIDE information**
- **OBTAIN information**
- **Identify REQUIREMENTS**
- **Provide RESOURCES**

State EOC / LA BEOC Activation and Coordination
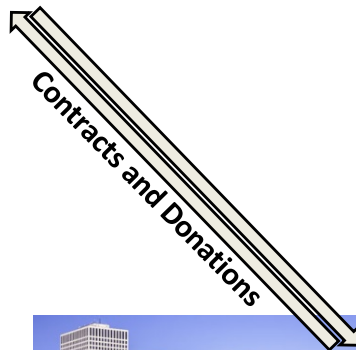

Louisiana State
Emergency Operations Center

LA BEOC
LOUISIANA BUSINESS EMERGENCY OPERATIONS CENTER

Abdalla Hall
UL Research Park

Information and Data Flow

SEOC to BEOC

Contracts and Donations

Situational Awareness

State Private Sector
Entities and Resources
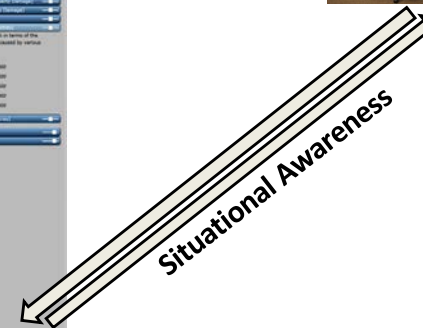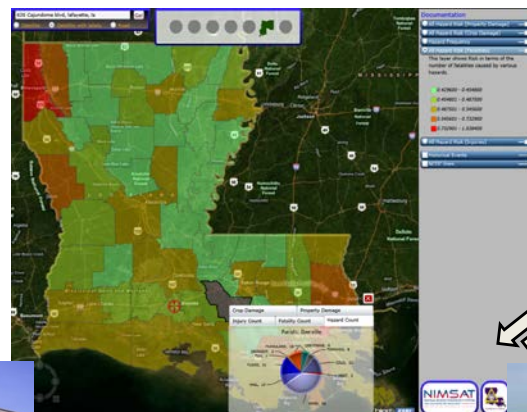
LABEOC Activation for Real-World Disasters

State of Louisiana

EXECUTIVE DEPARTMENT

PROCLAMATION NUMBER 111 JBE 2016

STATE OF EMERGENCY – HEAVY RAIN AND FLOODING

WHEREAS, the Louisiana Homeland Security and Emergency Assistance and Disaster Act, La. R.S. 29:721, *et seq.*, confers upon the Governor of the State of Louisiana emergency powers to deal with emergencies and disasters, including those caused by fire, flood, earthquake or other natural or manmade causes, in order to ensure that preparations of this State will be adequate to deal with such emergencies or disasters and to preserve the lives and property of the people of the State of Louisiana;

WHEREAS, when the Governor determines that a disaster or emergency has occurred, or the threat thereof is imminent, La. R.S. 29:724(B)(1) empowers the Governor to declare a state of emergency by executive order or proclamation, or both;

WHEREAS, a flash flood watch is in effect for all of southeastern Louisiana until at least Saturday morning, with rainfall accumulations of seven to ten inches likely, with some areas expected to receive m
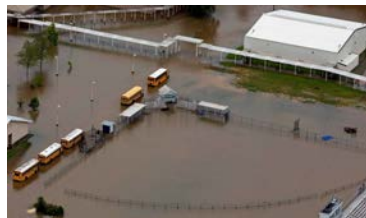
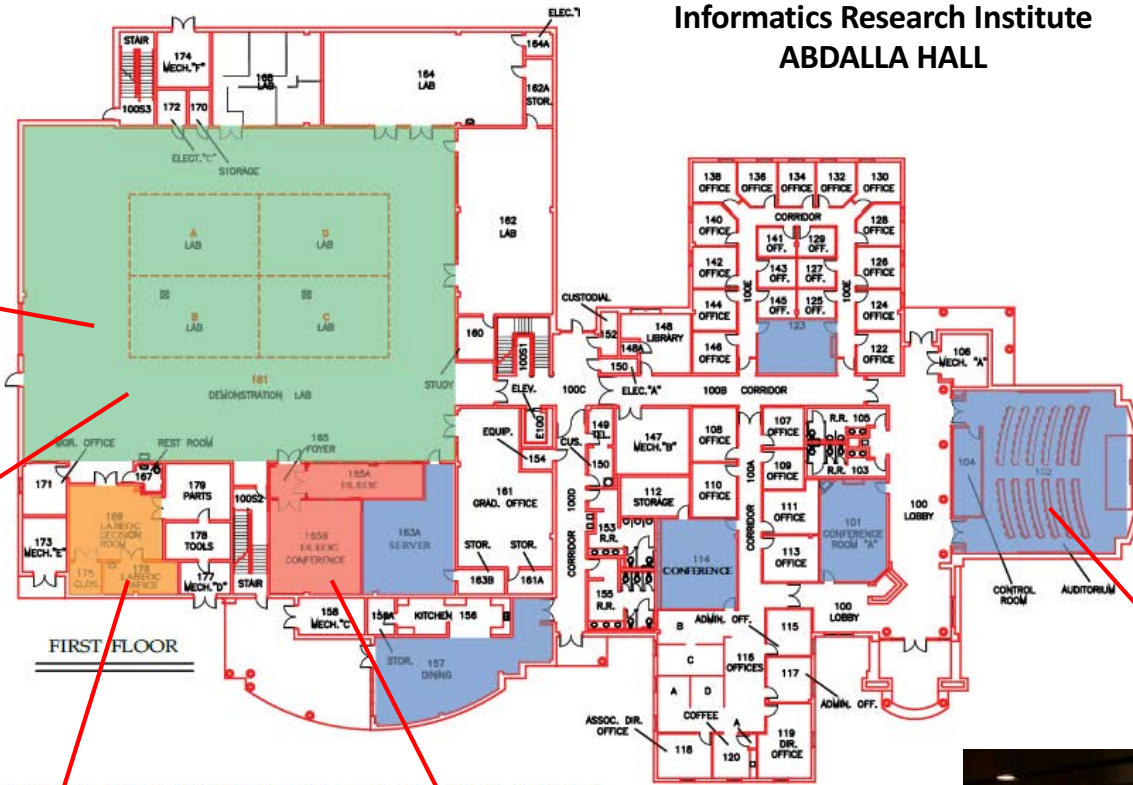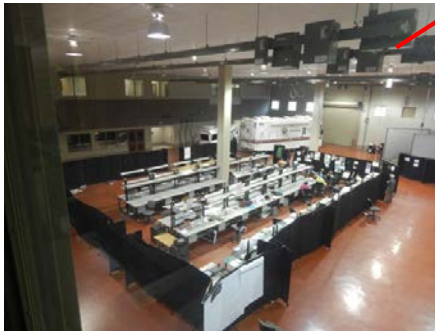GOHSEP Daily Operations Brief
—August 16 2016 as of 8: 30 a.m. —

East Baton Rouge: Between I-12 and Florida Blvd. West of Amite River   Civil Air Patrol

LABEOC Activations under
State and Federal Disaster Declarations

2010 -   Deepwater Horizon Oil Spill

2011 -   Mississippi River Flooding (DR-4041-LA)
                Tropical Storm Lee (DR-4041-LA)

2012 -   Hurricane Isaac (DR-4080-LA)

2013 -   Severe Storms and Flooding (DR-4102-LA)

2015 -   Severe Storms and Flooding (DR-4228-LA)

2016 -   Great Floods of Louisiana (DR-4262 / 4277-LA)
                St. James and St. John Parish tornados

2017 -   Livingston and Orleans Parish tornados (DR-4300-LA)

LA BEOC
LOUISIANA BUSINESS EMERGENCY OPERATIONS CENTER

UNIVERSITY of LOUISIANA
LAFAYETTE

Informatics Research Institute
ABDALLA HALL

FIRST FLOOR

Louisiana Business Emergency Operations Center (LA BEOC)

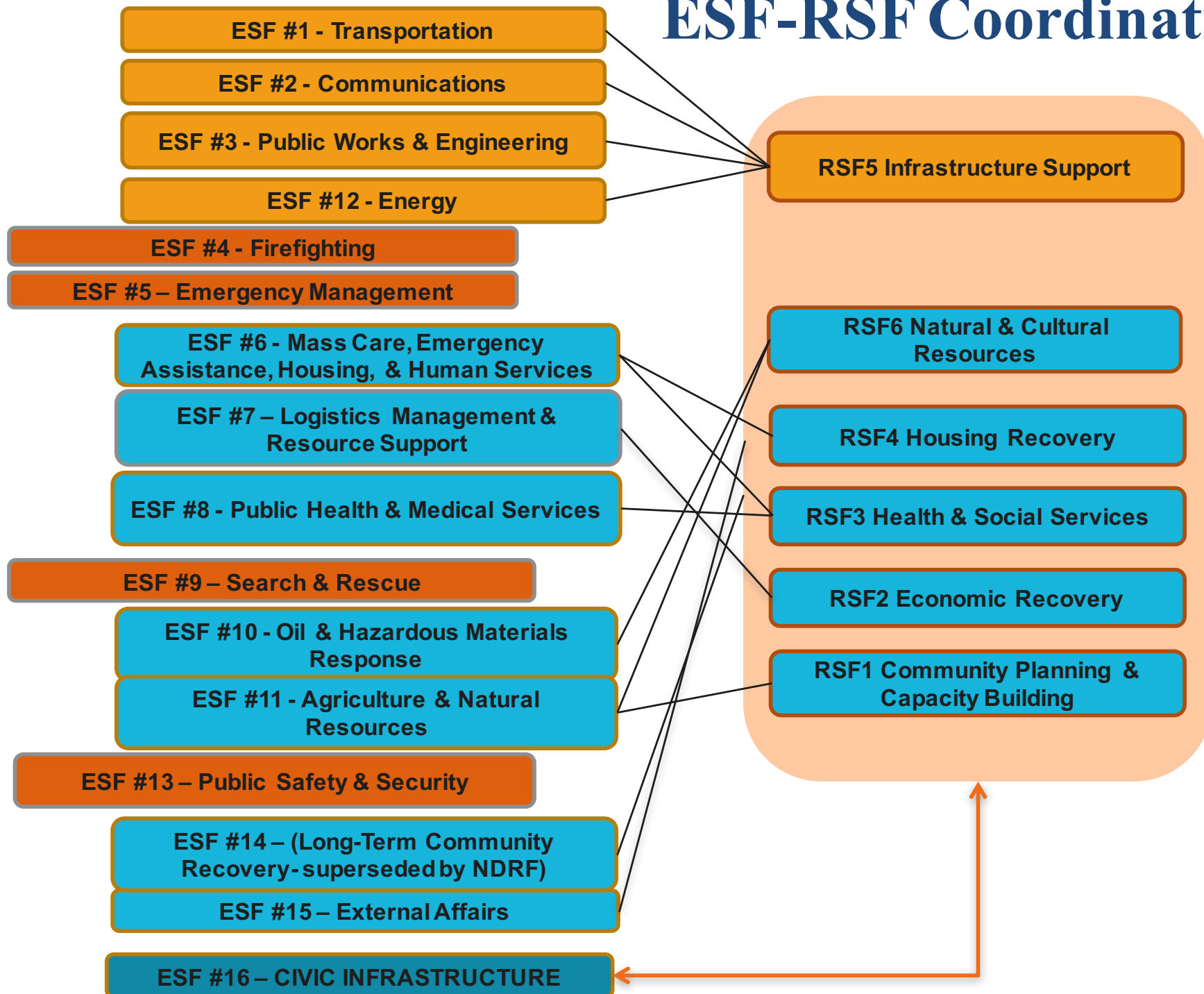University of Louisiana at Lafayette Emergency Operations Center (UL Lafayette EOC)

Alternate State Emergency Operations Center (SEOC)

Shared Space

NIMSAT
NATIONAL INCIDENT MANAGEMENT SYSTEMS
AND ADVANCED TECHNOLOGIES
UNIVERSITY OF LOUISIANA AT LAFAYETTE

ESF-RSF Coordination

ESF #1 - Transportation

ESF #2 - Communications

ESF #3 - Public Works & Engineering

ESF #12 - Energy

ESF #4 - Firefighting

ESF #5 – Emergency Management

ESF #6 - Mass Care, Emergency Assistance, Housing, & Human Services

ESF #7 – Logistics Management & Resource Support

ESF #8 - Public Health & Medical Services

ESF #9 – Search & Rescue

ESF #10 - Oil & Hazardous Materials Response

ESF #11 - Agriculture & Natural Resources

ESF #13 – Public Safety & Security

ESF #14 – (Long-Term Community Recovery - superseded by NDRF)

ESF #15 – External Affairs

ESF #16 – CIVIC INFRASTRUCTURE

RSF5 Infrastructure Support

RSF6 Natural & Cultural Resources

RSF4 Housing Recovery

RSF3 Health & Social Services

RSF2 Economic Recovery

RSF1 Community Planning & Capacity Building

OGC Smart City Interoperability Reference Architecture

ABSTRACT

This presentation will offer an overview of the "Blueprint for Smart Public Safety" developed by the members of the Public Safety SuperCluster of the Global City Teams Challenge, an international Smart City initiative of the National Institute for Standards and Technology (NIST). This initial release of the Blueprint for SPS considers issues related to smart city technology development and deployment of importance for first responders, city administrators and agencies, community leaders, and technology firms and private sector entities engaged in public-private partnerships to enhance overall community resilience and disaster recovery. At its initial stage of development, the Blueprint addresses standardization of technologies from the perspective of ensuring compatibility among purpose-designed applications—whether locally or nationally developed—and the obvious need for common operating systems to accommodate a variety of communications technologies and decision-support applications. As a consequence, the Public Safety SuperCluster, and the Smart City movement generally, will benefit from a focused discussion about the need for and benefits of an Interoperability Reference Architecture to help guide the design of future technology applications within the Smart Cities and Communities initiative.