



SMART CITIES
CONNECT
SPRING CONFERENCE & EXPO

APRIL 14-16, 2025 | SAN ANTONIO, TX



GLOBAL COMMUNITY
TECHNOLOGY CONSORTIUM

About ▾ Program ▾ Expo ▾ Sponsor ▾ Venue & Lodging Register



WHOLE COMMUNITY PREPAREDNESS FOR SMART, CONNECTED CITIES

Wednesday, April 16 from 10:30 AM to 12:25 PM

No cost, but registration is required.

<https://spring.smartcitiesconnect.org/workshops/whole-community-preparedness.html>

NIST Special Publication 1900

NIST Workshop Report
***Whole Community Preparedness in
Smart Cities and Communities***

Initial Draft

*Smart Connected Systems Division
Communications Technology Laboratory*

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.XXX.XXXX>

March 2025



National Institute of Standards and Technology

U.S. Department of Commerce

Workshop on Whole Community Preparedness in Smart Cities and Communities

BACKGROUND

Since 2014, the **Global Community Technology Consortium (GCTC)** of the National Institute of Standards and Technology (NIST) has been engaged in building a nation-wide public-private partnership of cities, private sector organizations, and research centers committed to improving city services and operations and residents' quality of life through the integration of advanced digital technologies. In 2024, the GCTC launched a priority research effort to develop concepts, technologies, protocols, and standards to improve public safety, health, and disaster resilience for cities and communities.

In 2011, the Federal Emergency Management Agency (FEMA) initiated the [Whole Community Approach](#) to disaster management with the goal of engaging community stakeholders—to include private sector entities, local agencies, and civil society—in building disaster resilient communities. In 2013, the Centers for Disease Control and Prevention (CDC) adopted a similar concept for public health. However, the national response to the COVID-19 pandemic revealed fundamental challenges in implementing a national strategy at the level of individual cities and communities. Figure 1 from the [National Disaster Recovery Framework \(NDRF\)](#) illustrates the gap in coordination and communications infrastructure and capability that exists at the community level.

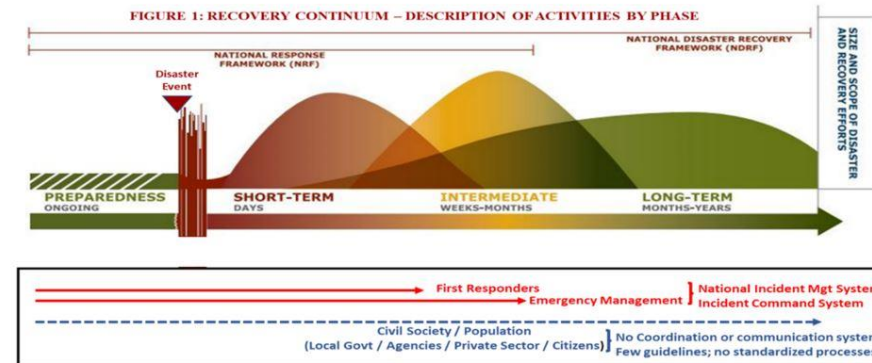


Figure 1. Recovery Continuum defined in the National Disaster Recovery Framework (top graphic) illustrating the challenge for local authorities and the affected population

As the red vectors below the NDRF Recovery Continuum illustrate, first responders and emergency managers operate within an organizational structure and doctrine defined by the [National Incident Management System](#) and [Incident Command System](#) and have dedicated communications through the Land Mobile Radio network ([LMR](#)), and digital broadband access via the First Responder Network Authority ([FirstNet](#)). In contrast, local authorities and the civil sector (the dotted blue vector) have no dedicated organizational framework or defined operational protocols or standards, nor the dedicated communications channels that would facilitate coordination of disaster preparedness and recovery. Consequently, there is no capability for shared situational awareness between response agencies and the community at large. Based on experience during the COVID-19 pandemic, implementation of a national “whole community” strategy will require significant research, investment, public engagement, and a standardized organizational structure and communications architecture.

Agenda

- Overview of the project: why are we here? (20 min)
- Group discussions of four questions (50 min)
- Read-out of discussion questions (20 min)
- Open discussion (20 min)
- Where we go from here (10 min)

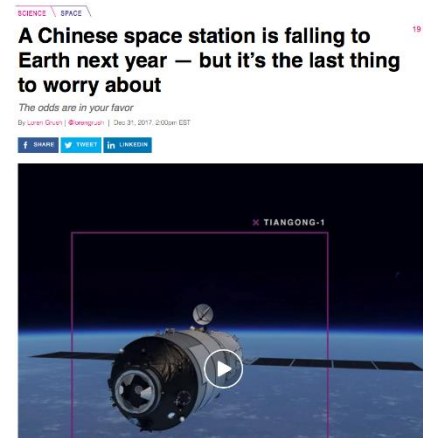


<http://www.cnn.com/2017/10/05/us/las-vegas-shooting-investigation/index.html>



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

2017 The worst disaster year on record ... so far

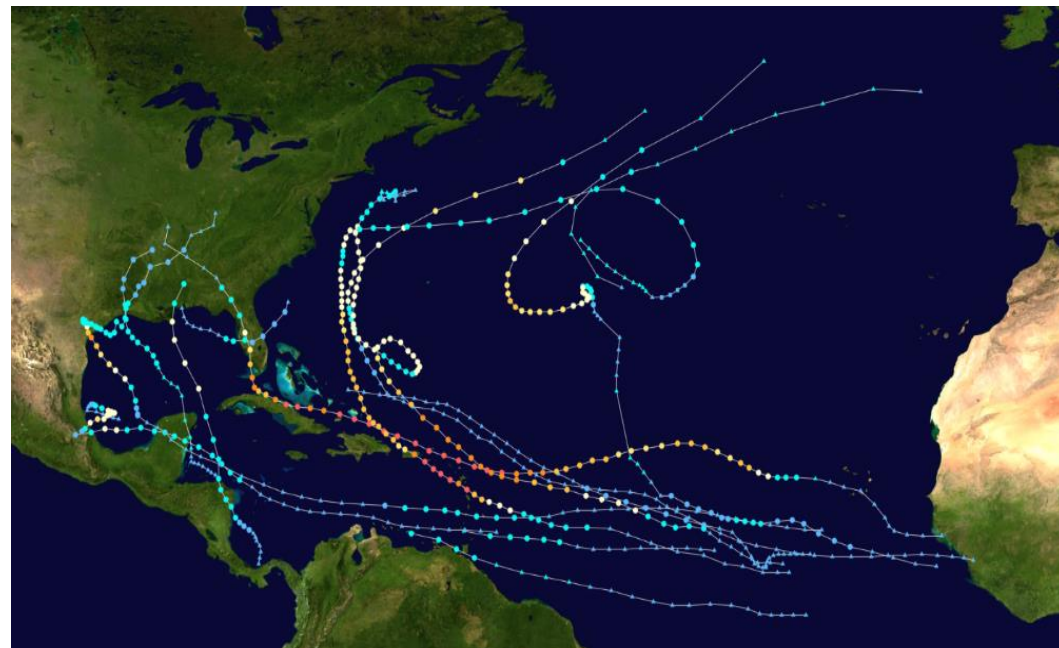


<https://www.theverge.com/2017/12/31/16830890/chinese-space-station-tiangong-1-debris-falling-to-earth>



Photos: Amtrak train derailed over interstate

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



2017 Atlantic Hurricane Season

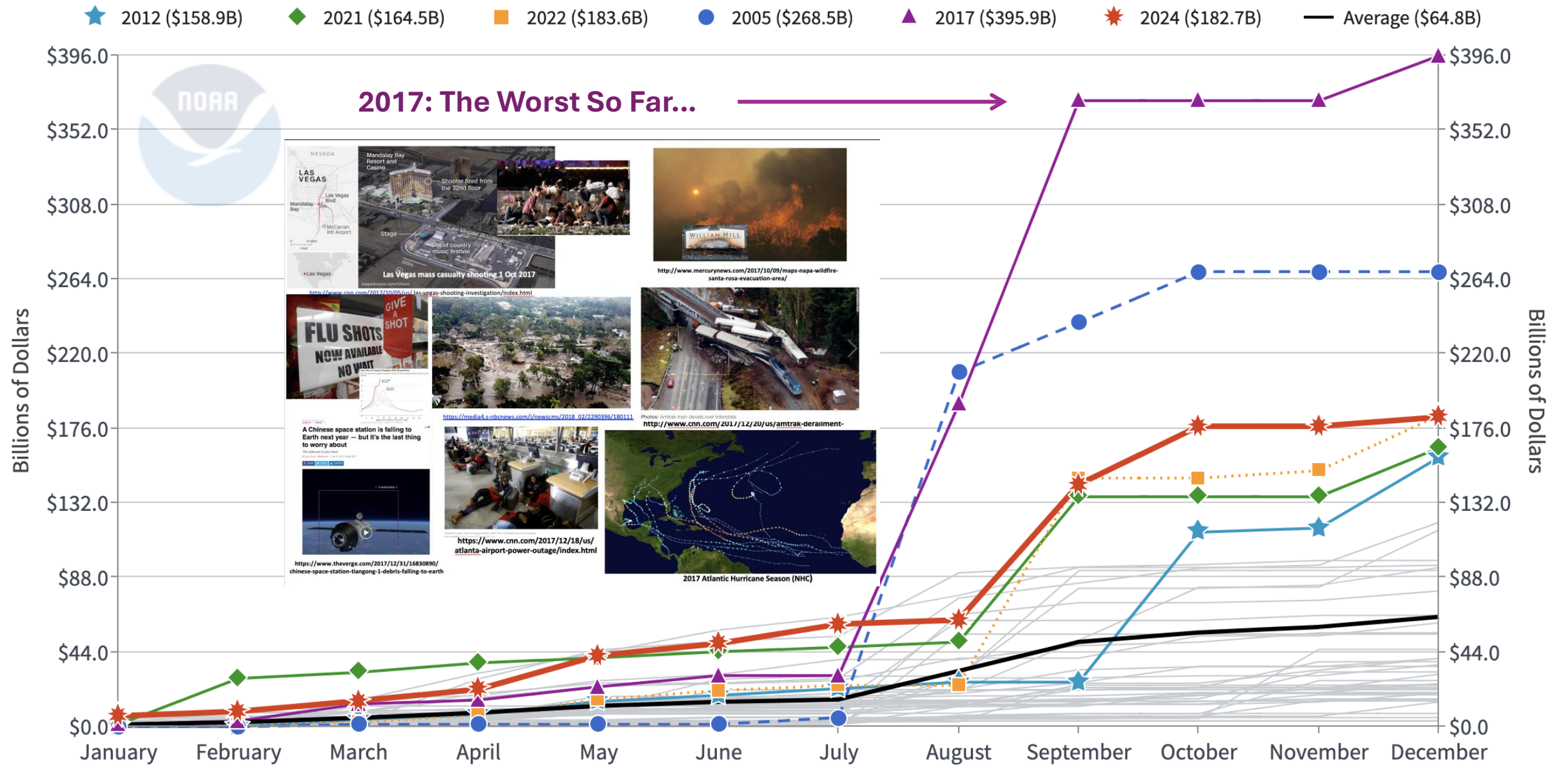


<https://www.cnn.com/2017/12/18/us/atlanta-airport-power-outage/index.html>



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

1980-2024 United States Billion-Dollar Disaster Year-to-Date Event Cost (CPI-Adjusted)



Updated: January 10, 2025

Event statistics are added according to the date on which they ended. Powered by ZingChart

SOURCE: <https://www.ncei.noaa.gov/access/billions/> Accessed: April 1, 2025



“Homes destroyed in the Palisades fire” by LA County Fire Department. Licensed under [CC BY 2.0](#). Source: [Flickr](#)



“Florida National Guard in Keaton Beach, Florida (Hurricane Helene)” by The National Guard. Licensed under [CC BY 2.0](#). Source: [Flickr](#)



“Tornado damage to a street in Greenfield, IA” by State Farm. Licensed under [CC BY 2.0](#). Source: [Flickr](#)

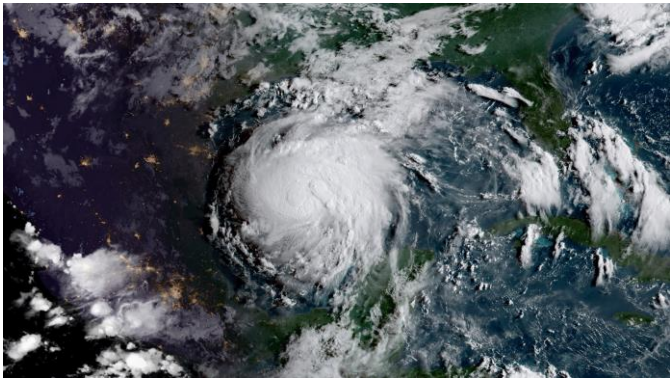


“Aerial view of the city of Mayfield on December 12” by State Farm. Licensed under [CC BY 2.0](#). Source: [Flickr](#)

... and 2024-2025 (so far)



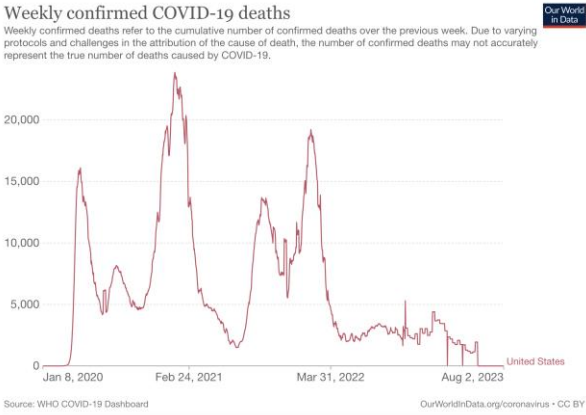
“Hurricane Harvey Flooding and Damage” by Jill Carlson. Licensed under [CC BY 2.0](#). Source: [Flickr](#)



Hurricane Harvey: NOAA/NASA GOES Project. Licensed under [CC BY 2.0](#). Source: [Flickr](#)



“Flooding caused by Hurricane Florence” S.C. Air National Guard. [Public Domain](#). Source: [Flickr](#)



“Timeline of weekly confirmed COVID-19 deaths in the United States.” Our World in Data. Licensed under [CC BY 4.0](#), Source: [Wikimedia](#)



“Maui community of Lahaina burned by wildfire.” State Farm licensed under [CC BY 2.0](#). Source: [Flickr](#)



“Surfside condominium collapse.” Miami-Dade Fire Rescue Dept. [Public domain](#). Source: [Twitter/X](#)



“Refloating the Dali” following impact with Francis Scott Key Bridge. GovPics. Licensed under [CC BY 2.0](#). Source: [Flickr](#)



National Disaster Recovery Framework

*Second Edition
June 2016*



Homeland
Security



A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action

FDOC 104-008-1 / December 2011



FEMA



Pandemic Response to Coronavirus Disease 2019 (COVID-19): Initial Assessment Report

FEMA Operations January through September 2020

January 2021



FEMA

Observations from the FEMA Initial Assessment Report

FEMA coordinated with private sector partners to expand access to scarce resources but lacked a consistent strategy across the operation for involving the private sector. (p. 9);

The lack of an SLTT partner-specific engagement plan at HQ with targeted messaging for specific stakeholders and groups created communications challenges in identifying, relaying, and addressing the needs of partners. (p. 10).

Recommendation 2.5.A. Articulate a long-term strategy for engaging the private sector and coordinating across HQ, regions, and field in future disaster responses. The strategy should be consistent with ESF-14 and build on lessons learned from the pandemic. (pp. 62, 75).

Recommendation 2.5.C. Develop a plan for integrating the private sector comprehensively in preparedness across the agency to include planning, organization, equipment, training, and exercises at HQ and the regions. (p.75).

Conclusions ... The private sector and non-governmental organizations have a critical role to play in readying the nation for disasters. FEMA must invest in new capabilities for collaboration and pursue innovative solutions for the toughest problems. (p. 133).



◀ PRESIDENTIAL ACTIONS

Achieving Efficiency Through State and Local Preparedness

The White House

March 19, 2025

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered:

Section 1. Purpose. Commonsense approaches and investments by State and local governments across American infrastructure will enhance national security and create a more resilient Nation. Federal policy must rightly recognize that preparedness is most effectively owned and managed at the State, local, and even individual levels, supported by a competent, accessible, and efficient Federal Government. Citizens are the immediate beneficiaries of sound local decisions and investments designed to address risks, including cyber attacks, wildfires, hurricanes, and space weather. When States are empowered to make smart infrastructure choices, taxpayers benefit.



SMART CITIES
CONNECT
SPRING CONFERENCE & EXPO

APRIL 14-16, 2025 | SAN ANTONIO, TX



GLOBAL COMMUNITY
TECHNOLOGY CONSORTIUM

[About](#) ▾ [Program](#) ▾ [Expo](#) ▾ [Sponsor](#) ▾ [Venue & Lodging](#) [Register](#)



WHOLE COMMUNITY PREPAREDNESS FOR SMART, CONNECTED CITIES

Wednesday, April 16 from 10:30 AM to 12:25 PM

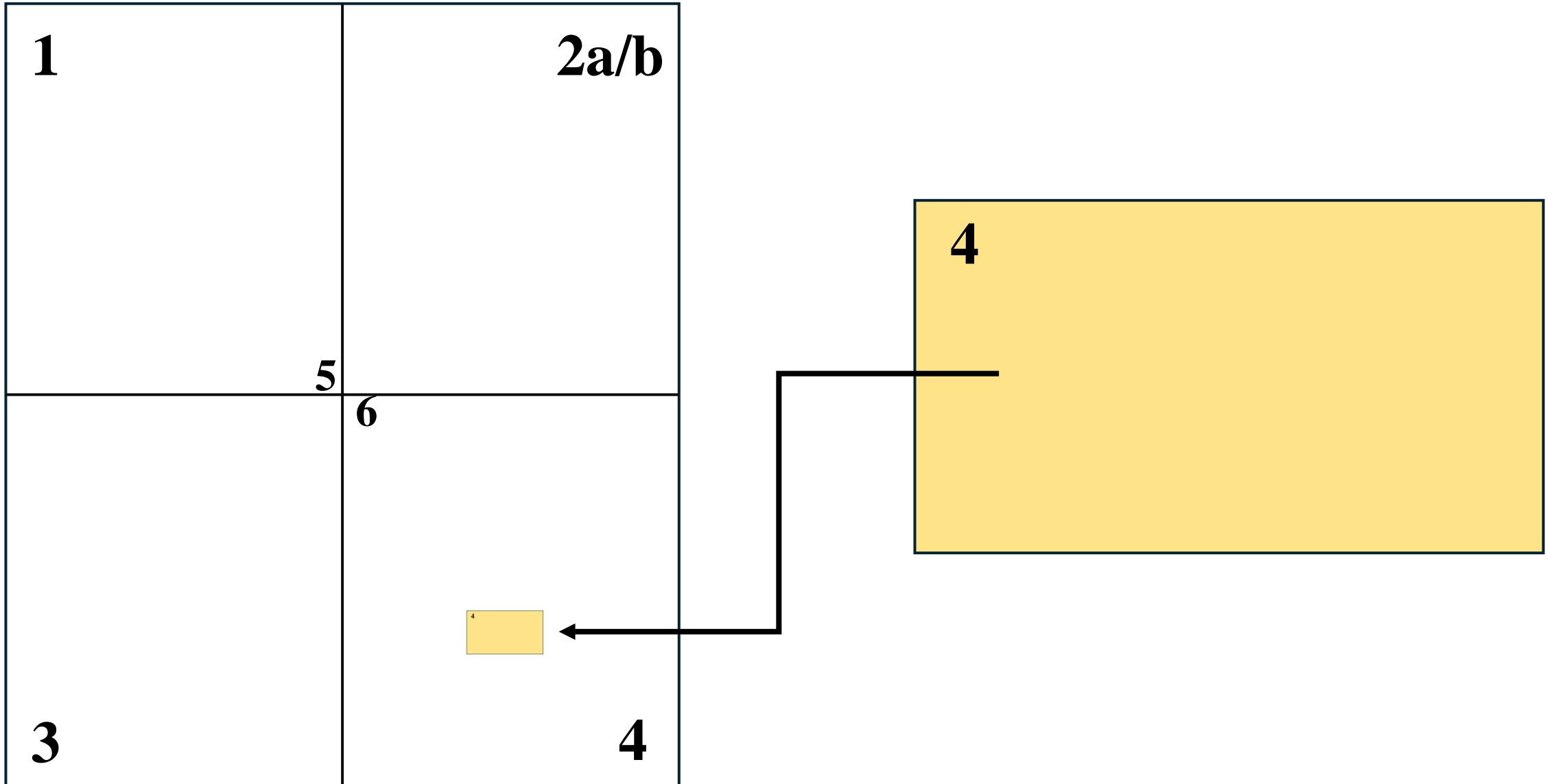
No cost, but registration is required.

The Challenge for the Community of Smart Cities

FOUR QUESTIONS FOR DISCUSSION

- 1) What capabilities should be developed to support communities in times of disaster or civic emergency?
- 2) Should a community-focused decision support and information sharing system be designed as:
 - ☐ A dedicated system to be reserved for local/civic preparedness, response, and recovery only? Or
 - ☐ A dual-use system having utility for both Blue-Sky (normal) and Gray-Sky (crisis) days?
 - ☐ If dual use, what functions should be incorporated into a community operations system or portal?
(e.g., access to city services; licensing and permitting; traffic cameras; business operations)
- 3) What Key Performance Indicators (KPIs) should be developed and integrated into a community decision support system for disaster preparedness and recovery?
- 4) How should operational considerations (efficiency of command/control/coordination) be balanced with civic considerations such as transparency/access/equity and the maintenance of public trust?

How We're Going to Do This



The Team

Wilf Pinfold

Raimundo Rodulfo

Mariela Alfonzo

Shandi Treloar

Chelsea McCullough

Cheyney O'Fallon

Michael Dunaway

Cirrus Group / OpenCommons

City of Coral Gables

State of Place

McChrystal Group

DigiCity / Smart Cities Connect

Prometheus, LLC / NIST

National Institute of Standards and Technology

Question #1:

What capabilities should be developed to support communities in times of disaster or civic emergency?

i.e., What do smart cities and communities need to improve resilience and preparedness for recovery?

Question #2a:

Should a community-focused information and decision support system be designed as:

- ☐ A *dedicated system* to be reserved for local/civic preparedness, response, and recovery only? Or
- ☐ A *dual-use system* having utility for both Blue-Sky (normal) and Gray-Sky (crisis) days?

Question #2b:

☐ If dual use, what functions should be incorporated into a community operations system or portal?

(e.g., public access to city services; licensing and permitting; traffic cameras; support to business operations, etc.)

Question #3:

What Key Performance Indicators (KPIs) should be developed and integrated into a community information sharing and decision support system for disaster preparedness and recovery?

(i.e., What do we measure, and How do we measure it?)

Question #4:

How should operational considerations—i.e., efficiency of command/control/coordination—be balanced with civic considerations such as transparency/access/equity and the maintenance of public trust?

Optional Question #5:

What other question(s) should be addressed or researched in the future as a part of this project?

(i.e., what did we miss?)

Optional Question #6:

Is your city, community, organization, or business currently working in an area (or addressing a problem) that supports a Whole Community Approach to Smart City Preparedness?

If so, please provide the name and organization website or contact information (if you are willing to do so).

Discussion Question Highlights

2-3 key take-aways per group

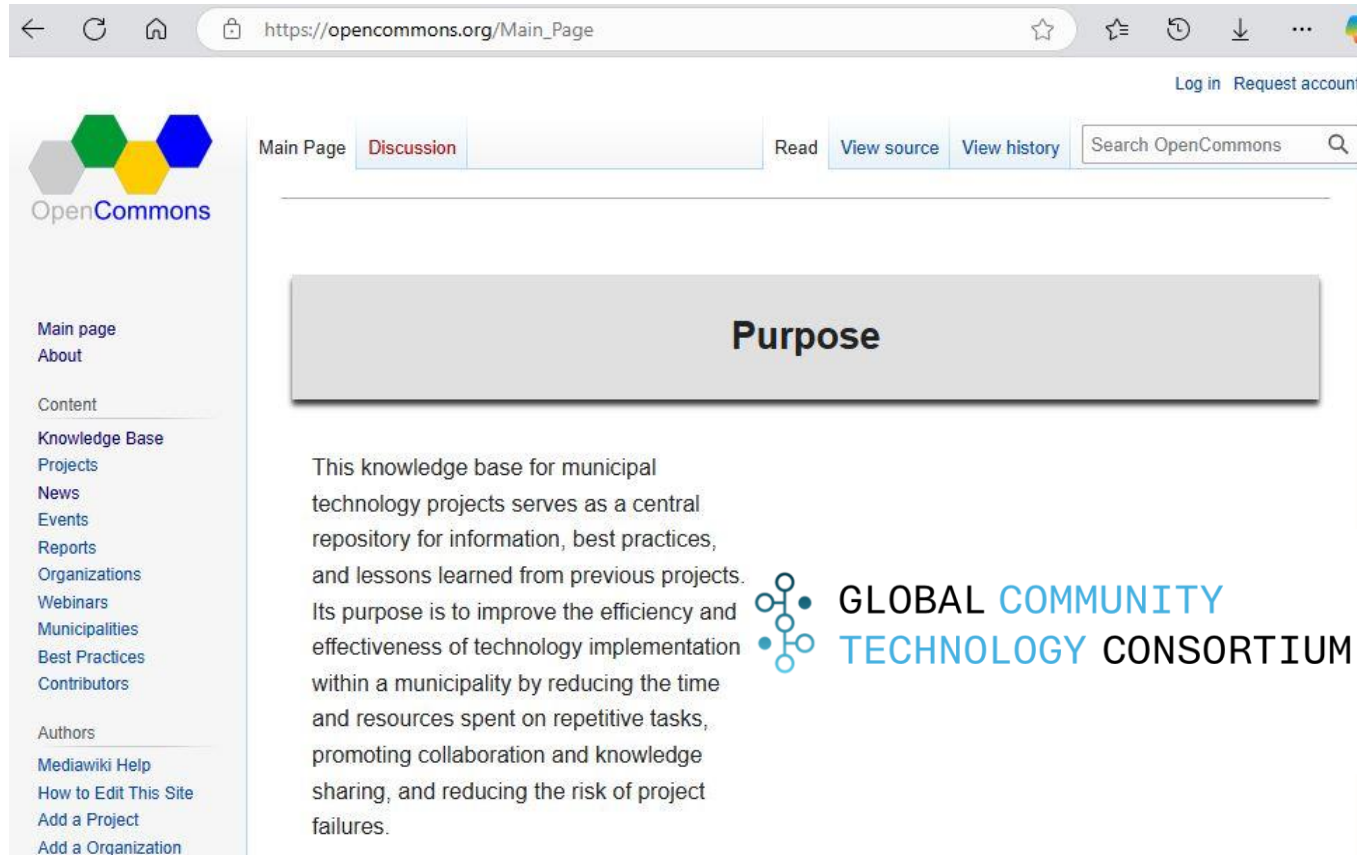
(20 Minutes)

Open Discussion

(20 Minutes)

OpenCommons / GCTC

Smart City Wiki and Knowledge Base



OpenCommons.org

gctc@opencommons.org

Next Steps

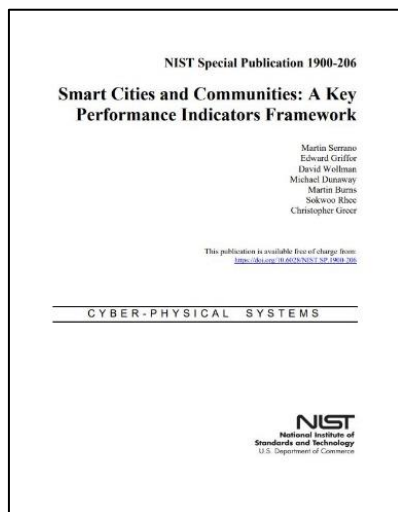
- Compile outcomes of this Workshop
- Publish the NIST Workshop Report
- Distribute the NIST Report to participants at this SCC Conference

- Present the Report and results at the National Homeland Security Conference, Washington, D.C., 25-27 August 2025
- Present the Report and outcomes of this SCC Workshop at the Fall SCC Conference, Washington, D.C., 18-20 November 2025

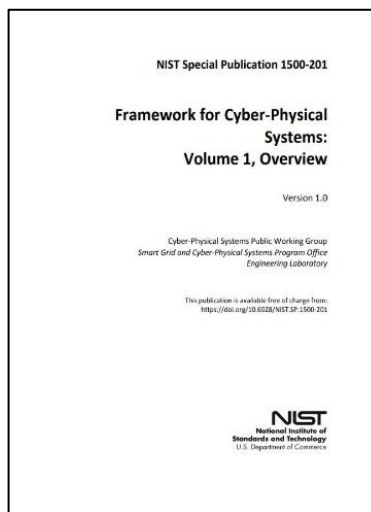
Ultimate Objective:

Develop a “Framework for Whole Community
Preparedness for Smart Cities and Communities”

NIST Resource Documents for Smart Cities and Communities



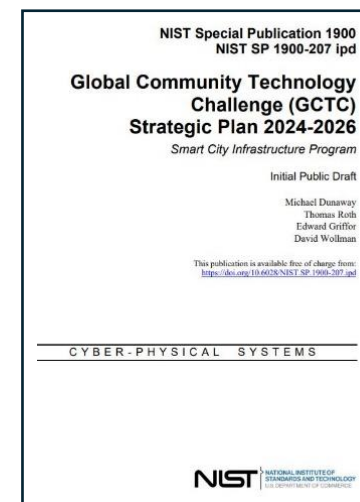
<https://www.nist.gov/publications/smart-cities-and-communities-key-performance-indicators-framework>



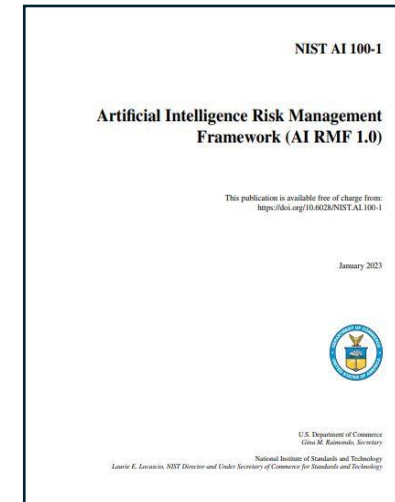
https://s3.amazonaws.com/nist-sgcp/cpspwg/files/pwgglobal/CPS_PWG_Framework_for_Cyber_Physical_Systems_Release_1_0Final.pdf



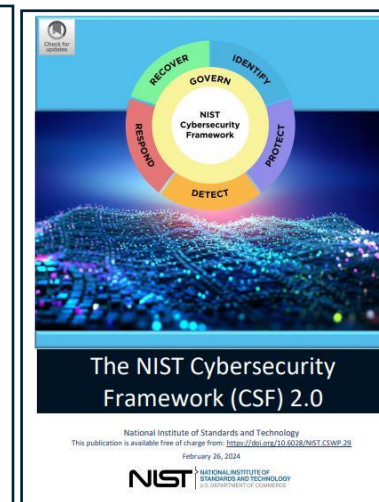
<https://www.nist.gov/cti/smart-connected-systems-division/iot-devices-and-infrastructures-group/ies-cities-architecture>



<https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.1900-207.ipd.pdf>



<https://airc.nist.gov/Home>



[https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.29.p](https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.29.pdf)
d f



Thank you for your help!