Communications Interoperability:
Leading the Way

SEARCH
The National Consortium for Justice
Information and Statistics

Introductions

Dan Hawkins

Director

SEARCH Public Safety Programs

Dennis Cobb

Deputy Chief

Las Vegas Metropolitan PD

Agenda

- What is the Issue with Communications Interoperability?
- How are COPS Programs Addressing the Issue?
- What Resources are Available to Agencies with Interoperability Projects?
- Leadership in Improving Interagency Communications

Interoperability is Information Sharing

Wireless interoperability is the ability of public safety service and support providers to talk with each other via voice and data

- on demand, in real time
- when needed, when authorized

SAFECOM

Information Sharing is the ability to share critical information at key decision points throughout the enterprise.
SEARCH

Information sharing is the critical measure of interoperability

What's the Issue?

9/11: New York City

McKinsey&Company

Improving NYPD Emergency Preparedness and Response

August 19, 2002

This report was prepared by McKinsey & Company based upon information provided by the New York Police Department.

What's the Issue?

McKinsey Report: NYPD

"Radios suffered from clutter in early phase of incident, and only 42% of [officers] could clearly decipher traffic"

Executive Summary, p. 25

McKinsey Report: FDNY

"Firefighters and EMS personnel were hindered in their response on September 11 by <u>multiple failures of communications systems and processes</u> and technology limitations."

Executive Summary, p. 17

9/11: Pentagon

ARLINGTON COUNTY

AFTER-ACTION REPORT ON THE RESPONSE TO THE SEPTEMBER 11 TERRORIST ATTACK ON THE PENTAGON

What's the Issue?

"Almost all aspects of communications continue to be problematic, from initial notification to tactical operations."
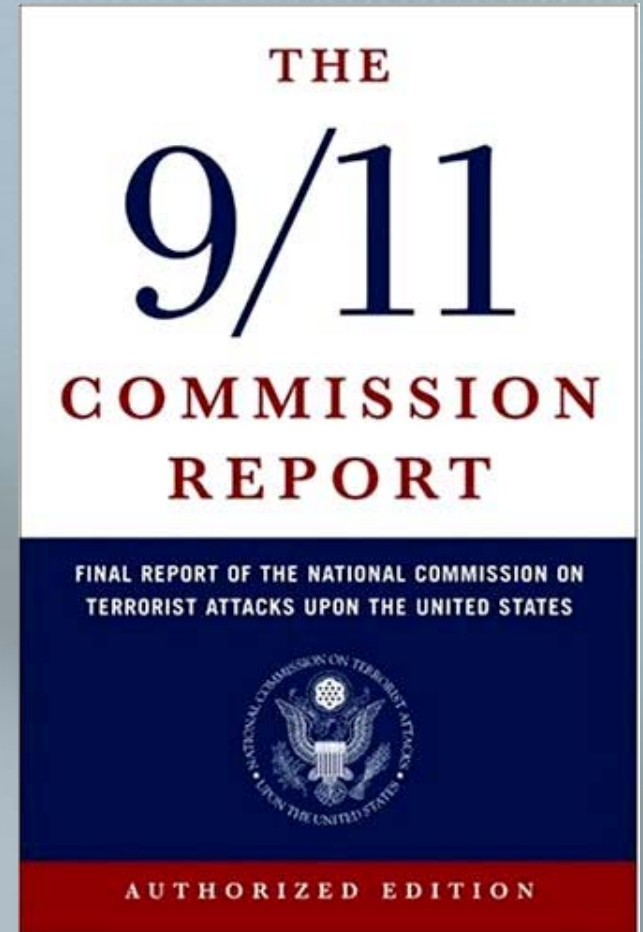
- p. 12

9/11 Commission Report

What's the Issue?

"Any attempt to establish a unified command on 9/11 would have been further frustrated by the lack of communication and coordination among responding agencies." — p. 321

"It is a fair inference, given the differing situations in New York City and Northern Virginia, that the problems in command, control, and communications that occurred at both sites will likely recur in any emergency of similar scale." — p. 315

THE 9/11 COMMISSION REPORT

FINAL REPORT OF THE NATIONAL COMMISSION ON TERRORIST ATTACKS UPON THE UNITED STATES
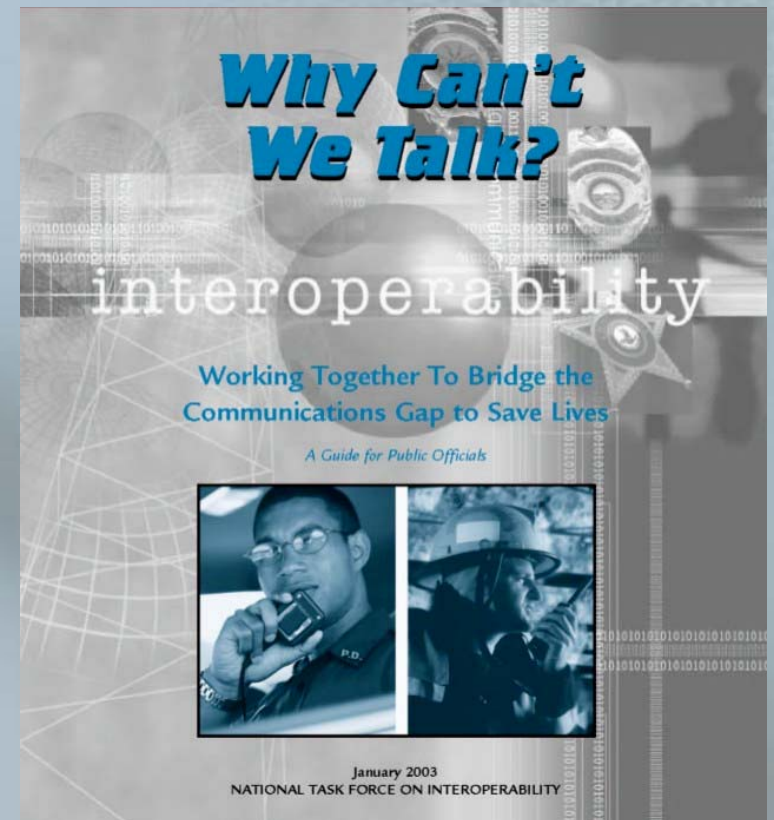
AUTHORIZED EDITION

National Task Force on Interoperability (2003)

What's the Issue?

- Incompatible and Aging Communications Equipment
- Limited and Fragmented Funding
- Limited and Fragmented Planning
- Lack of Coordination and Cooperation
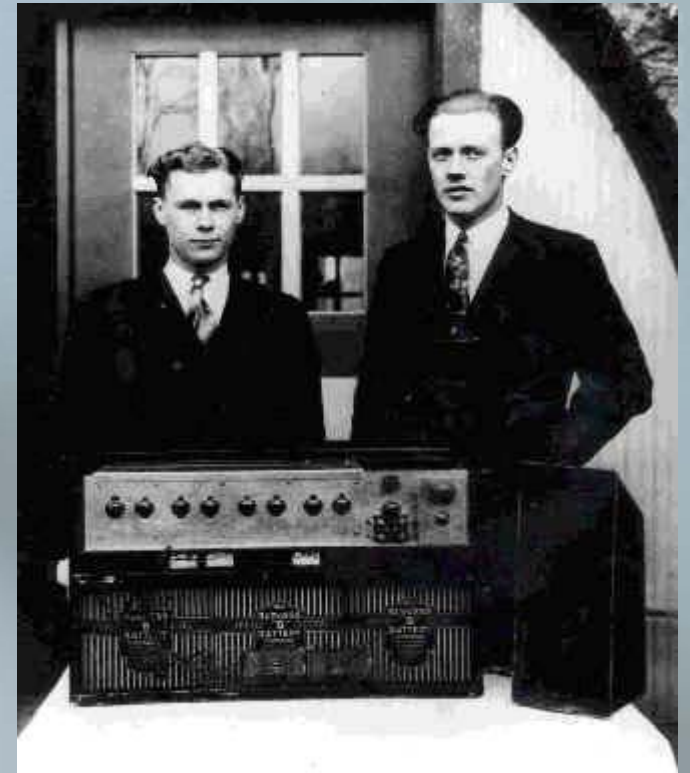- Limited and Fragmented Radio Spectrum

NTFI #1
Incompatible and Aging Equipment

What's the Issue?

NLETC (1998) – Direct correlation between system age and effectiveness. Local LE systems averaged 9 years, state 15 years. Fire and EMS systems averaging 10 years.

NTFI #2
Limited and Fragmented Funding

In 1998, state and local radio equipment was estimated to be worth $18.3B.

In 2005, total system costs were estimated to be over $60B

What's the Issue?

NTFI #3
Lack of Coordination and Cooperation

Needed changes were noted:

- Patterns of isolated spending

- Increased sharing of management and control

Systems and parts of systems can be shared

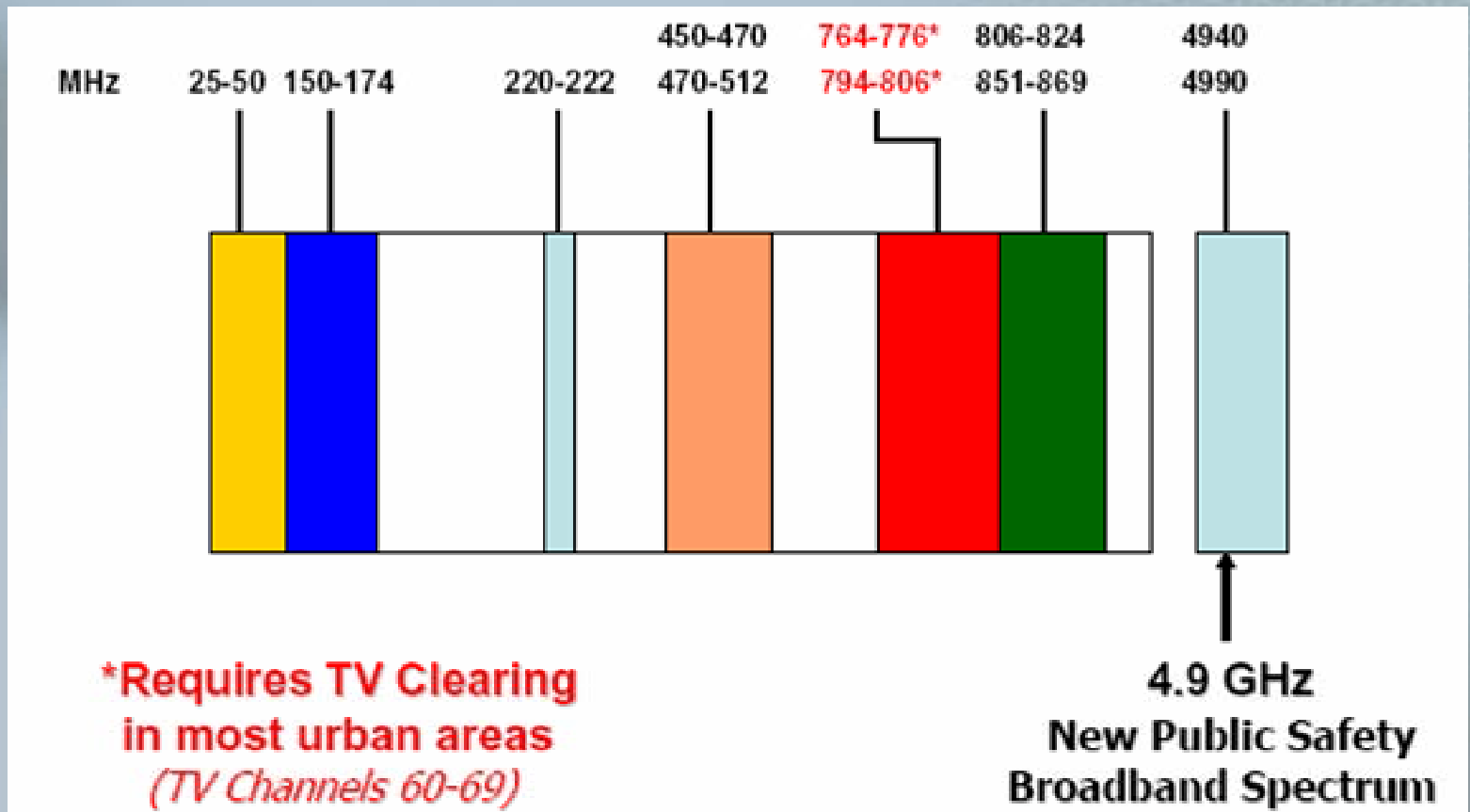What's the Issue?

NTFI #4
Limited and Fragmented Planning

Technical planning has often been faulted ...

... but operational planning is the key

NTFI #5
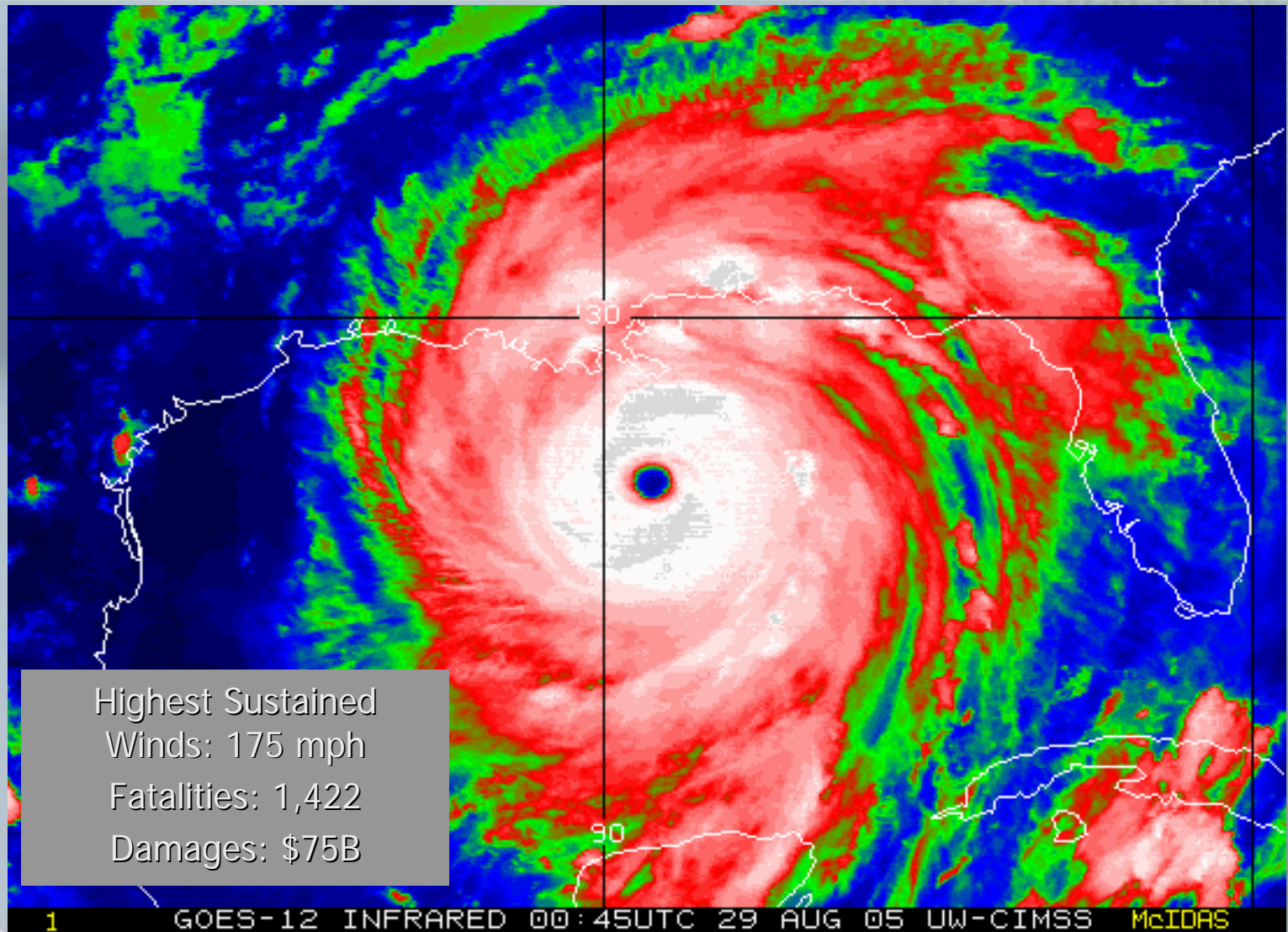## Limited and Fragmented Radio Spectrum

| MHz | 25-50 | 150-174 | | 220-222 | 450-470 470-512 | | 764-776* 794-806* | 806-824 851-869 | | 4940 4990 |

*Requires TV Clearing
in most urban areas
(TV Channels 60-69)

4.9 GHz
New Public Safety
Broadband Spectrum

What's the Issue?
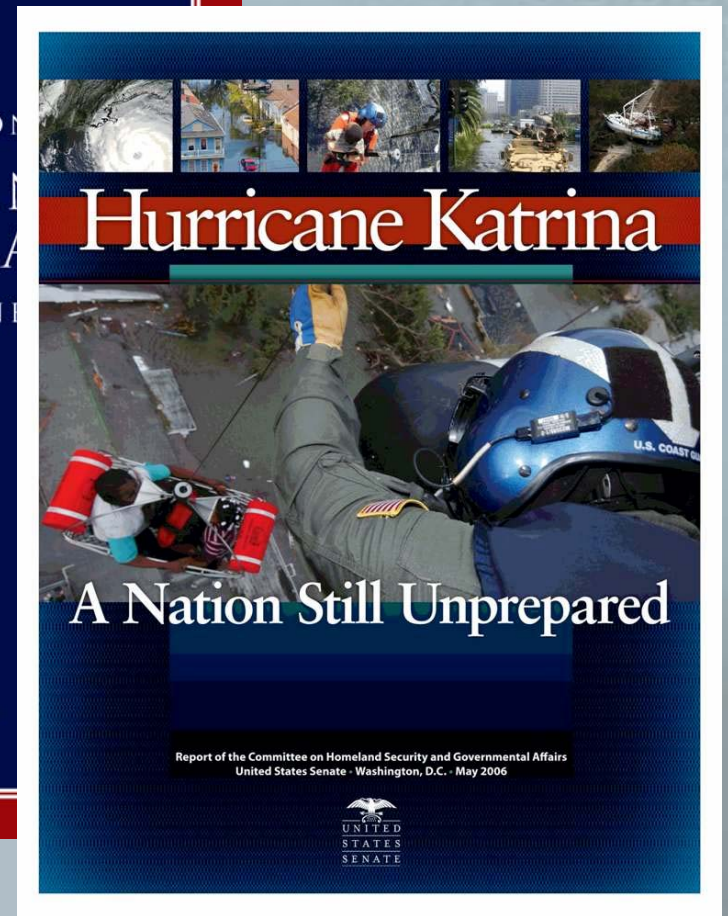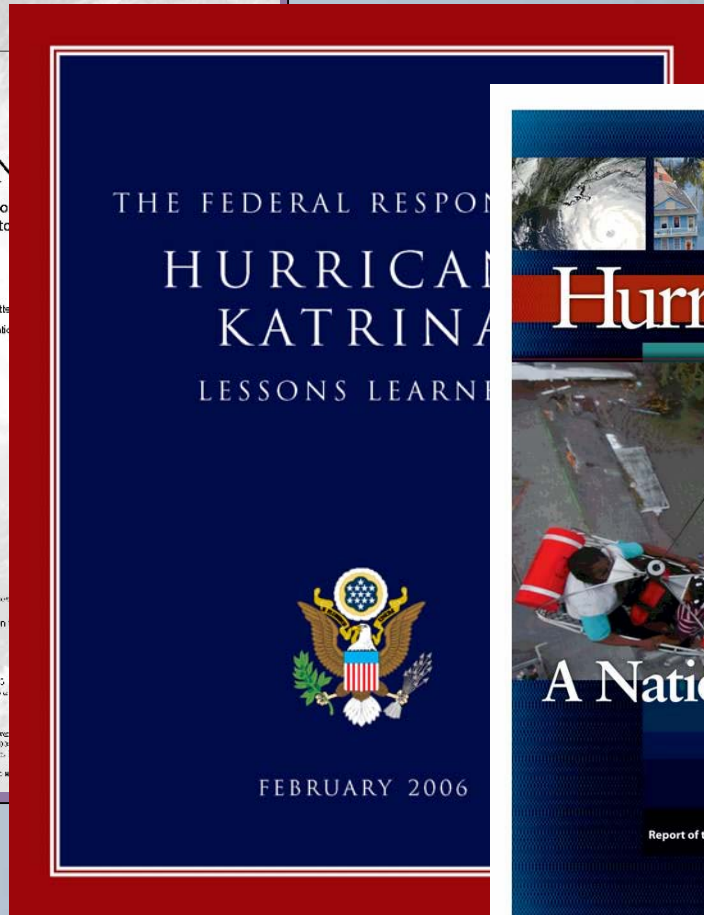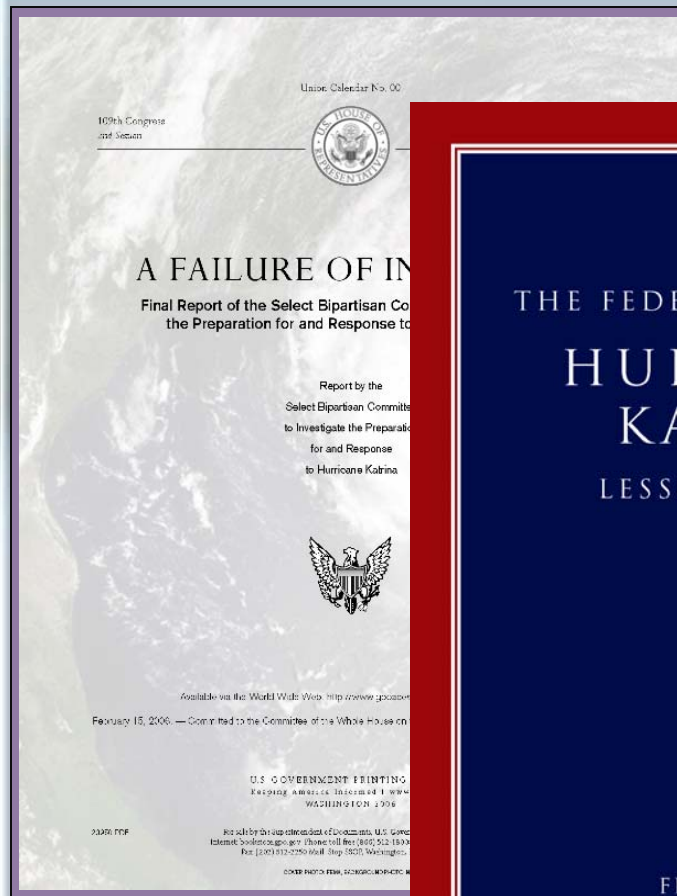
Hurricane Katrina

What's the Issue?

Highest Sustained Winds: 175 mph

Fatalities: 1,422

Damages: $75B

GOES-12 INFRARED 00:45UTC 29 AUG 05 UW-CIMSS   McIDAS

Hurricane Katrina: Investigations

What's the Issue?

Katrina: House Report

"Our mandate was clear: gather facts about the preparation for and response to Katrina, at all levels of government."

"Investigate aggressively, follow the facts wherever they may lead, and find out what went right and what went wrong.

"Ask why coordination and information sharing between local, state, and federal governments was so dismal."

What's the Issue?

Katrina: House Report

What's the Issue?

*"**Finding**: Lack of communications and situational awareness paralyzed command and control."*

"Communications between DOD and DHS, and in particularly FEMA, during the immediate week after landfall, reflect a lack of information sharing, near panic, and problems with process."

Katrina: White House Report

What's the Issue?

THE FEDERAL RESPONSE TO

HURRICANE KATRINA

LESSONS LEARNED

FEBRUARY 2006
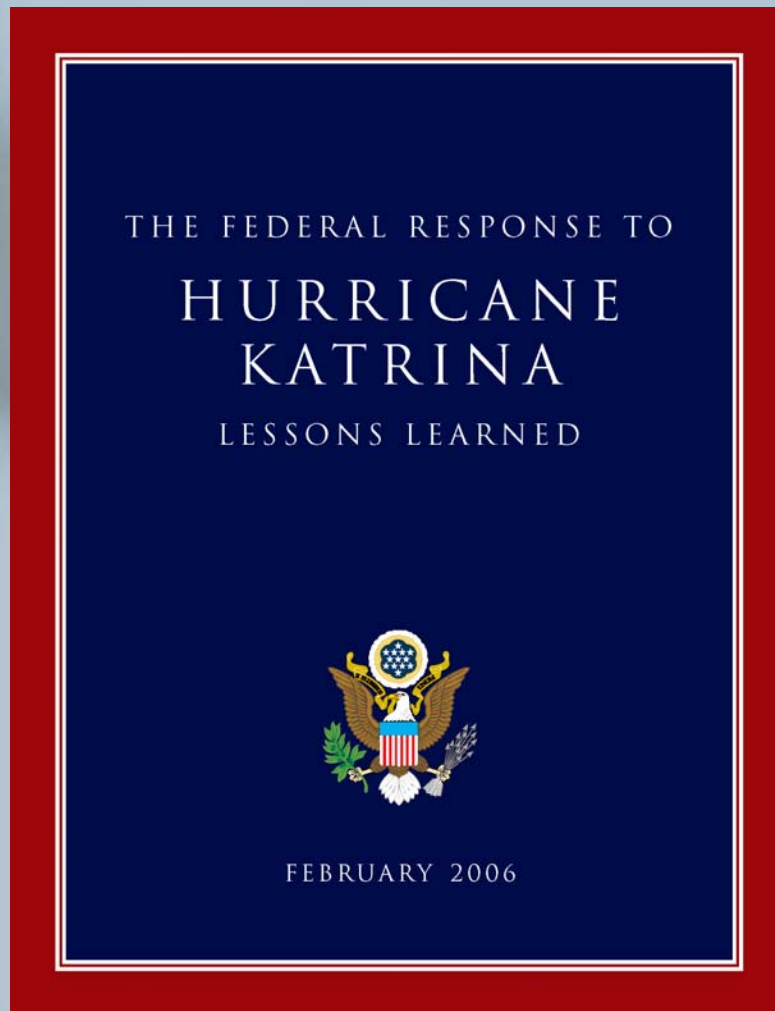
<u>Critical Challenge</u>: Communications

"[C]ommunications challenges across the Gulf Coast region in Hurricane Katrina's wake were ***more a problem of basic operability than one of equipment or system interoperability***.

- p. 55

Katrina: White House Report
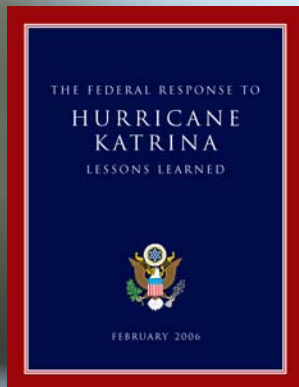
*Although Federal, State, and local agencies had communications plans and assets in place, these **plans and assets were neither sufficient nor adequately integrated** to respond effectively to the disaster."*

- p. 55

*This inability to connect multiple communications plans and architectures **clearly impeded coordination and communication at the Federal, State, and local levels**.*

- p. 56

What's the Issue?

Katrina: Senate Report

What's the Issue?

Hurricane Katrina

A Nation Still Unprepared

Report of the Committee on Homeland Security and Governmental Affairs
United States Senate · Washington, D.C. · May 2006

UNITED STATES SENATE
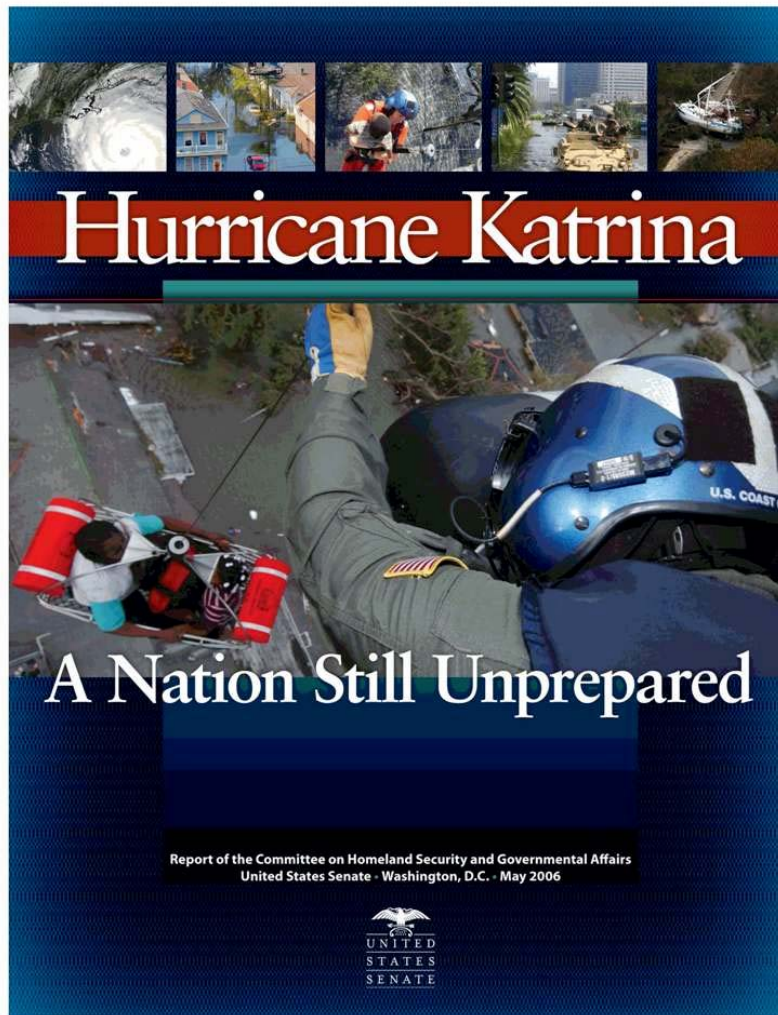
*"Though much attention had been paid to addressing communications shortfalls, **efforts to address interoperability – as well as simply operability – were inadequate**. There was little advance preparation regarding how responders would operate in an area with no power and where virtually all forms of pre-existing communications were destroyed."*   - p. 16

Katrina: Senate Report
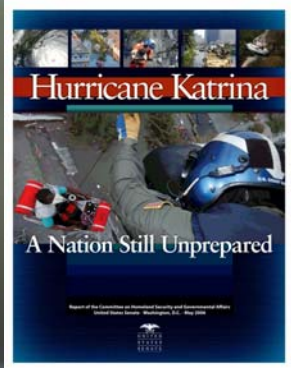
*"The inability of government officials and first responders to communicate during a response to an emergency, results in the loss of lives during terrorist attacks, natural disasters, and every-day operations. The **problems of operability and interoperability of communications were a central part of the failures** in the governments' response to Hurricane Katrina."*

- p. 18-1

COPS Interoperable Communications Technology Program (ICTP)

- Initiated in FY03
- 65 grants have been awarded through FY06, totaling approximately $250M
- All grantees have been required to attend project kickoff training provided by SEARCH
- Additional, no-cost technical assistance

Leadership

COPS Interoperable Communications Technology Program (ICTP) Grants

COPS ICTP
Technical Assistance Program

Technical Assistance methods:

- Conferences, workshops, summits, and other facilitated training
- Publications, including issue briefs, white papers, and guides offering in-depth analysis of technology issues and specific management recommendations
- Onsite and in-house technical assistance on using best practices in technology project governance, planning and project management

Training

TA

Publications

SEARCH
National
Technical
Assistance
Program

Assisting justice and
public safety to develop,
operate, secure and
improve information
sharing and identification
systems.

Make Technology Work for You

Justice • Public Safety • Homeland Security

www.search.org

COPS ICTP
Technical Assistance Program

Kickoff Conferences

- FY2003 Grantees
  Washington, D.C.
  February 2004

- FY2004 Grantees
  Miami, Florida
  December 2004

- FY2005 Grantees
  Phoenix, Arizona
  November 2005

Training

Publications

COPS ICTP
Technical Assistance Program

Advanced Workshops

- **Denver**
  April 2005

- **Columbus**
  June 2005

- **Charlotte**
  July 2005

Training

Publications

COPS ICTP
Technical Assistance Program

National Interoperability Summit

May 24 - 25, 2006
Austin, Texas

Co-sponsored by DOJ & DHS

Approximately 150 persons representing interagency communications projects from state, local, and federal government.

Training

Publications

SEARCH
Technical Assistance Programs

- **COPS Interoperable Communications Technology Program (ICTP)**
  - Interagency communications projects across 2003-2006 grantees (65 grants)

- **COPS Technology Program**
  - Projects of many types across 2003-2006 grantees (~1350 grants)

- **DHS Interoperable Communications Technical Assistance Program (ICTAP)**
  - All DHS grantees are eligible; most assistance is going to tactical interoperable communications planning

Training

TA

Publications

TA Focus Areas

Effective governance structures development

Acquisition document development (RFI/RFP)

Systems evaluation

Information exchange analysis

Business process documentation

Technical documentation review

Needs analysis and assessment

Policy and procedure development

Strategic planning

IT procurement planning

Security assessments

Legal, policy and technical research

Infrastructure assessment

Meeting facilitation

Requirements development

Technology planning workshops

Statistical analysis

Standards development (XML, data exchange, functional, performance)

Information security policy development

Computer forensics policy and unit development

Performance measures development

"Very specific, practical and hands-on."

— Terry Speiker, Intergovernmental Relations Director, Ramsey County (Minnesota)

COPS
Technical Assistance Programs

- *Law Enforcement Tech Guide*
  - Published in 2002
  - Approx. 10,000 copies distributed
  - Self-directed guide
  - Text for training

Training

Publications

U.S. Department of Justice
Office of Community Oriented Policing Services

COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

LAW ENFORCEMENT
Tech Guide

How to plan, purchase and manage technology (successfully!)
A Guide for Executives, Managers and Technologists
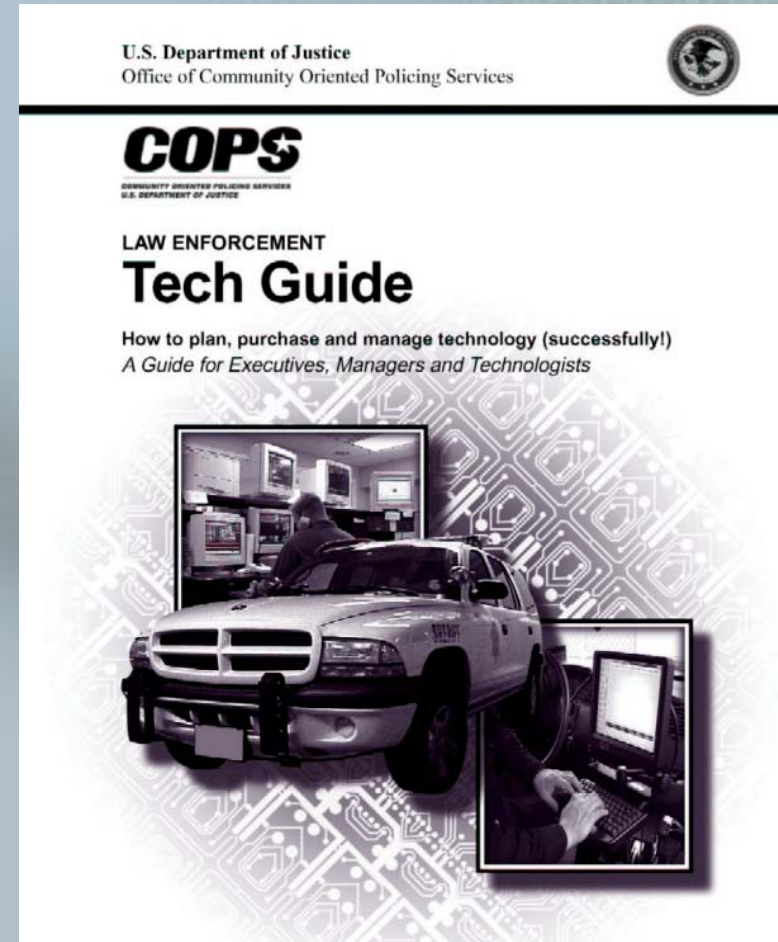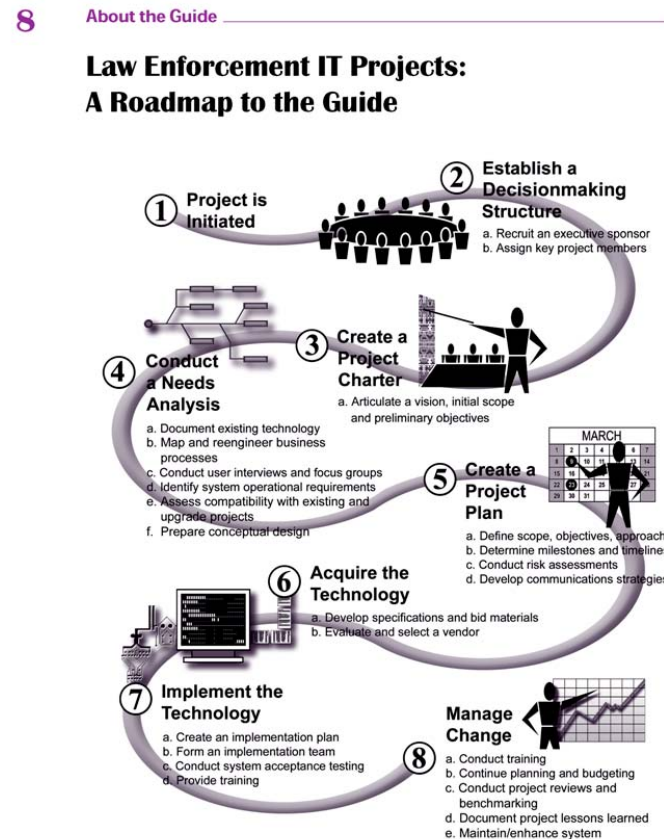
COPS
Technical Assistance Programs

- *Law Enforcement Tech Guide*
  - Staple reference for direct technical assistance provided to agencies
  - Friendly, usable
  - Practical application to public safety projects of all sorts

Training

TA

Publications

8 About the Guide

Law Enforcement IT Projects: A Roadmap to the Guide

① Project is Initiated

② Establish a Decisionmaking Structure
  a. Recruit an executive sponsor
  b. Assign key project members

③ Create a Project Charter
  a. Articulate a vision, initial scope and preliminary objectives

④ Conduct a Needs Analysis
  a. Document existing technology
  b. Map and reengineer business processes
  c. Conduct user interviews and focus groups
  d. Identify system operational requirements
  e. Assess compatibility with existing and upgrade projects
  f. Prepare conceptual design

⑤ Create a Project Plan
  a. Define scope, objectives, approach
  b. Determine milestones and timelines
  c. Conduct risk assessments
  d. Develop communications strategies

⑥ Acquire the Technology
  a. Develop specifications and bid materials
  b. Evaluate and select a vendor

⑦ Implement the Technology
  a. Create an implementation plan
  b. Form an implementation team
  c. Conduct system acceptance testing
  d. Provide training

⑧ Manage Change
  a. Conduct training
  b. Continue planning and budgeting
  c. Conduct project reviews and benchmarking
  d. Document project lessons learned
  e. Maintain/enhance system

COPS
Technical Assistance Programs

- *Law Enforcement Tech Guides – The Series*
  - *Original Tech Guide*
  - *Small & Rural*
  - *IT Security Policies*
  - *Performance Measures*
  - *Communications Interoperability*

Training

TA
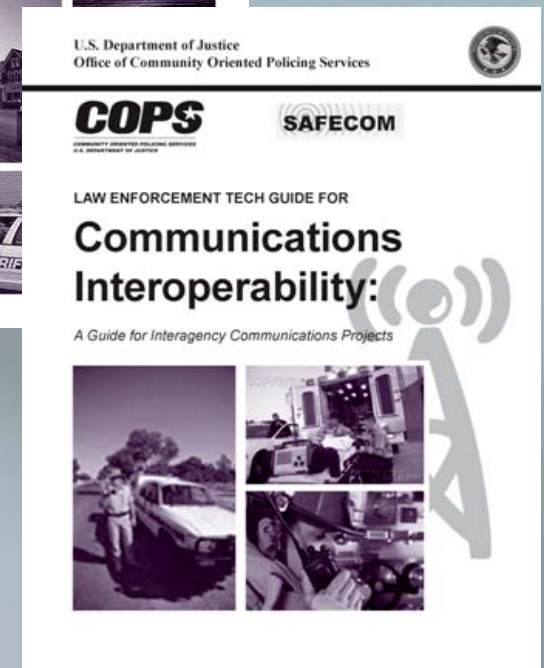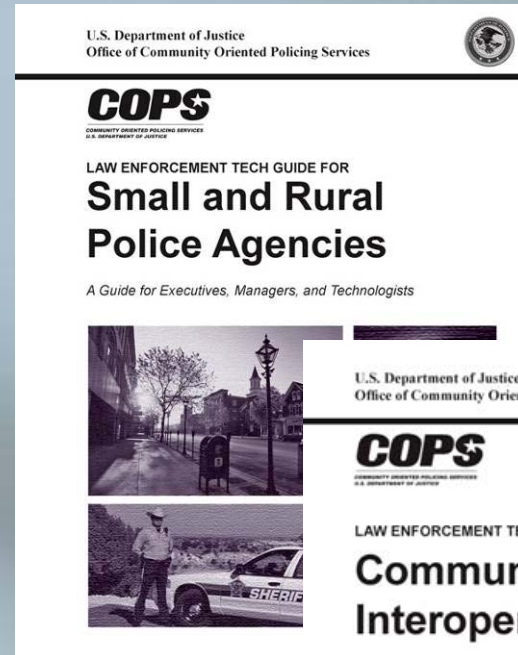
Publications

COPS
Technical Assistance Programs

- Companion to the Law Enforcement Tech Guide
- For interagency communications projects of <u>all</u> disciplines
- August 2006 Publication

Training

TA

Publications

U.S. Department of Justice
Office of Community Oriented Policing Services

COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

(SAFECOM)

LAW ENFORCEMENT TECH GUIDE FOR

Communications Interoperability:

A Guide for Interagency Communications Projects
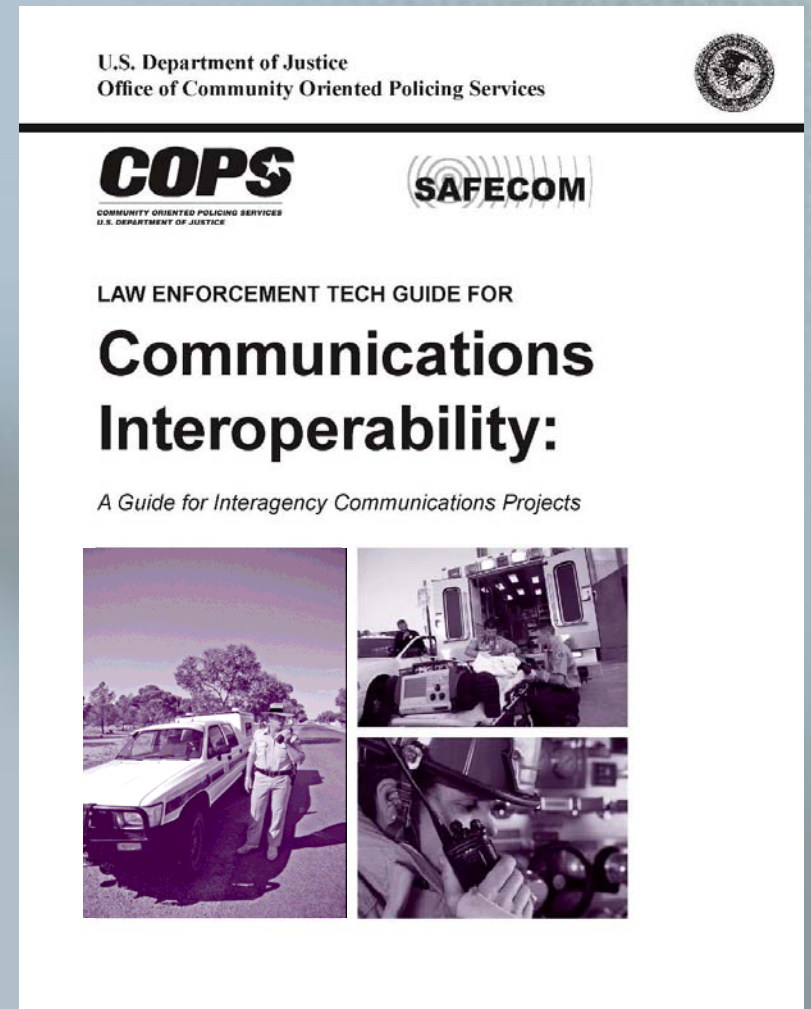
COPS
Technical Assistance Programs

- **Review Committee**
  - Harlin McEwen
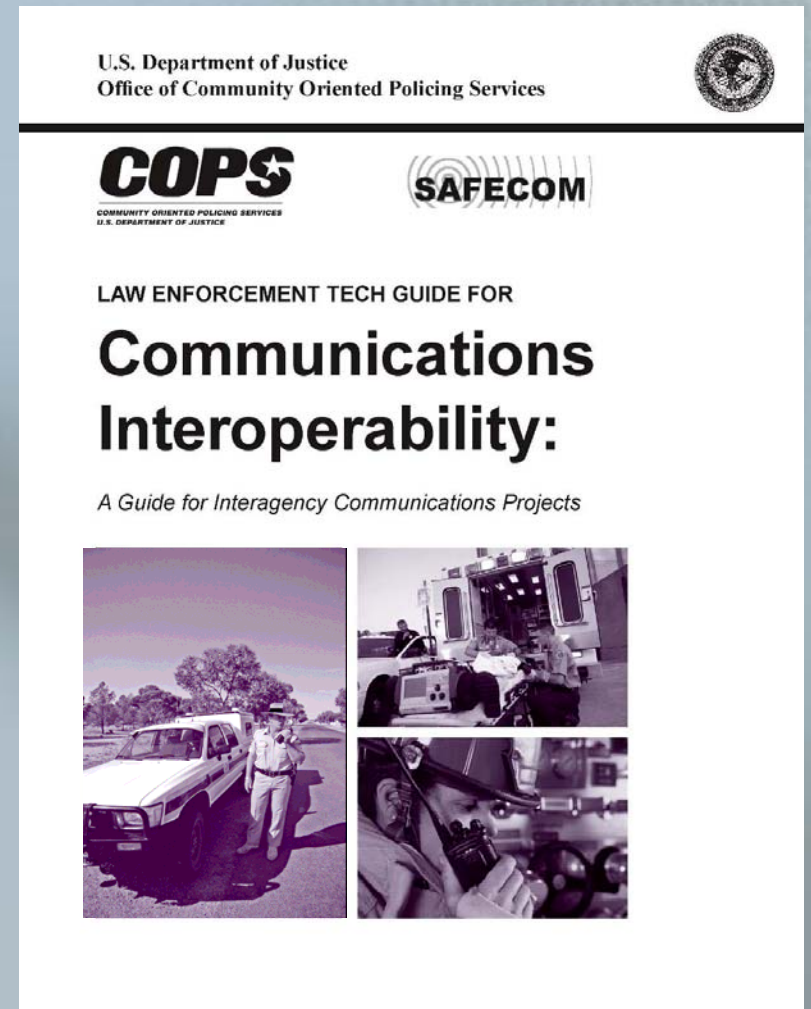 - Joe Noce
  - John Powell
  - Steve Proctor
  - Marilyn Ward
- **Further review**
  - DOJ, DHS, Global

Training

TA

Publications

U.S. Department of Justice
Office of Community Oriented Policing Services

COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

SAFECOM

LAW ENFORCEMENT TECH GUIDE FOR

Communications Interoperability:

A Guide for Interagency Communications Projects

COPS
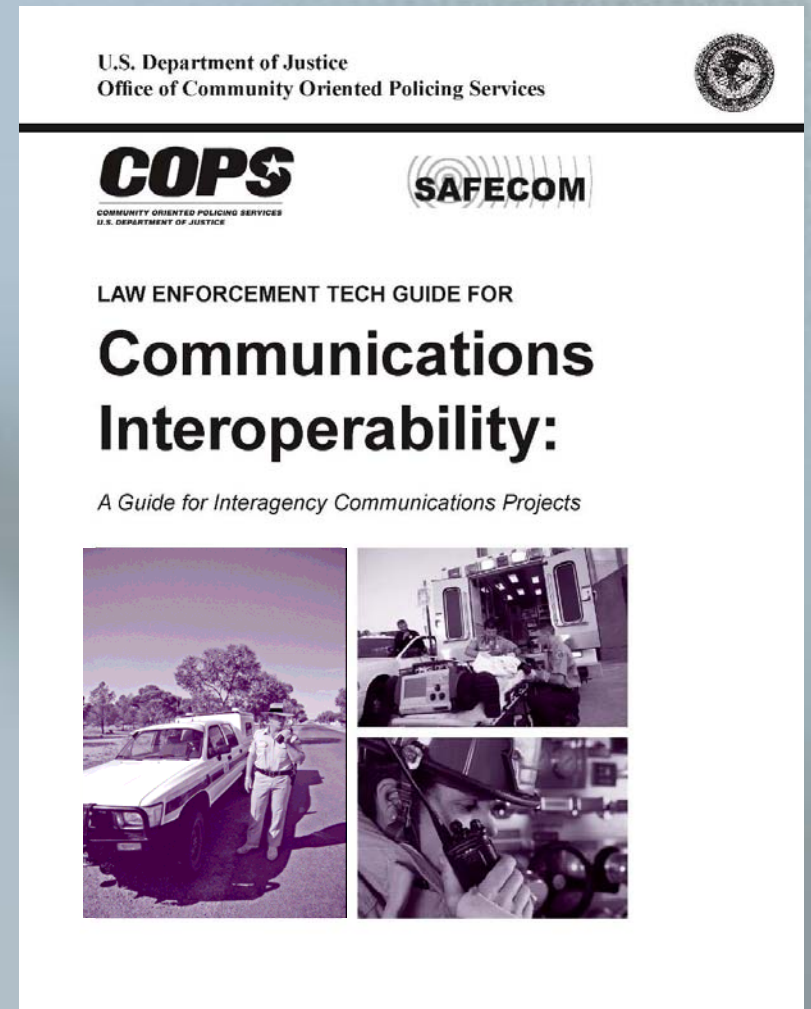## Technical Assistance Programs

- **How will it be used?**
  - **Self-directed Guide**
    - Project managers
  - **Toolkit**
    - Technical assistance providers
  - **Common reference for interoperability projects**

Training

TA

Publications

U.S. Department of Justice
Office of Community Oriented Policing Services

COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

SAFECOM

LAW ENFORCEMENT TECH GUIDE FOR

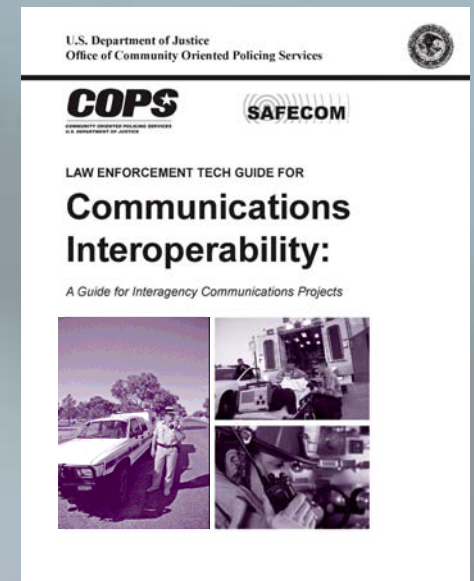# Communications Interoperability:

A Guide for Interagency Communications Projects

IO Tech Guide - Contents

- What is Interoperability?
- How is Interoperability Achieved?
- Exploring the Technologies
- Appendices

Training

TA

Publications

IO Tech Guide - Contents

- **What is Interoperability?**
  - 1. Introduction: A Changing Environment
  - 2. Key Challenges and Critical Elements
  - 3. Operability – Job #1
  - 4. Interoperability and the Integrated Enterprise
- **How is Interoperability Achieved?**
- **Exploring the Technologies**
- **Appendices**

Training

TA

Publications

IO Tech Guide - Contents

- What is Interoperability?
- How is Interoperability Achieved?
  - 5. Build an Interagency Foundation
  - 6. Conduct a Needs Analysis
  - 7. Scope the Work to be Done
- Exploring the Technologies
- Appendices

Training

TA

Publications

IO Tech Guide - Contents

- What is Interoperability?

- How is Interoperability Achieved?
    - 8. Create a Project Plan
    - 9. Acquire the System Components
    - 10. Implement the System

- Exploring the Technologies

- Appendices

Training

Publications

IO Tech Guide - Contents

- **What is Interoperability?**

- **How is Interoperability Achieved?**
  - 11. Transition to Long-Term Governance
  - 12. Develop Policies and Procedures
  - 13. Train and Exercise

- Exploring the Technologies

- Appendices

Training

TA

Publications

IO Tech Guide - Contents

- What is Interoperability?
- How is Interoperability Achieved?
  - 14. Maintain the Technology
  - 15. Measuring Interoperability
- Exploring the Technologies
- Appendices

Training

Publications

IO Tech Guide - Contents

- What is Interoperability?
- How is Interoperability Achieved?
- Exploring the Technologies
    - 16. Voice Communications
    - 17. Data Communications
- Appendices

Training

Publications

IO Tech Guide - Contents

- **What is Interoperability?**
- **How is Interoperability Achieved?**
- **Exploring the Technologies**
- **Appendices**
  - A. Sample Agreements
  - B. SOP Examples
  - C. ICS Communications Position Duties
  - D. Interoperability Assessment Scorecard

Training

TA

Publications

IO Tech Guide - Contents

- What is Interoperability?
- How is Interoperability Achieved?
- Exploring the Technologies
- Appendices
  - E. Bibliography
  - F. Glossary
  - G. SAFECOM Interoperability Continuum

Training

TA

Publications

Sources: Tech Guides

- **Online**
  - COPS: Publications are available at

    http://www.cops.usdoj.gov/default.asp?Item=118

  - SEARCH: Complete versions of the larger documents can be found as single files at

    http://www.search.org/services/publications/

- **Hard Copy**:
  - Distributed by the COPS Office. Contact the COPS Office Response Center

    800-421-6770 or by email at askCOPSRC@usdoj.gov

Communications Interoperability: Leading the Way

Presenter:

Dennis Cobb, Deputy Chief

Las Vegas Metropolitan PD

*Positions presented in this briefing do not necessarily represent those of the LVMPD, and are solely the opinion of the speaker.

Beyond Connections: 4 'Flavors' of Interoperability & Information Sharing

- **Voice**
- **Data**
- **Logistics**
- **Procedures**

"Whether it is in the personal realm of the individual warrior, or in the public domain of an entire nation or culture, the essence of the swordless art is to make resourcefulness your resource."

Thomas Cleary,

1977

The Japanese Art of War,

Voice Interoperability

- **Two "Necessary & Sufficient" Elements:**
  - **Connection**
    - Technical necessity, but not the whole answer.
  - **Communication**
    - Transfer of meaning — "Understanding"
    - Requires knowledge of others' perspectives and needs.

不要射擊   ontspruit niet

μην πυροβολήστε

撃ってはいけない   не снимите

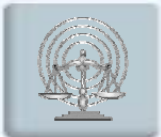*"I may lose a battle; I will never lose a minute."*   Napoleon

LVMPD Radio XXI

- **7800 square mile coverage**
- **700/800 MHz bands**
  - Some 700MHz available in Nevada
  - 800MHz needed for full operability
- **TDMA**
  - Future spectral efficiency

Our goal is not merely to prepare for challenges we *can* anticipate, but rather to provide a foundation to meet challenges we *cannot* anticipate.

LVMPD Radio XXI

- **"2nd Parachute" Redundancy**
  - Perhaps unique to Southern Nevada
  - Closely aligned separate systems
  - "Graceful" failure curve

"To flourish and grow in the many-sided, uncertain, and ever-changing world that surrounds us suggests that we must make intuitive within ourselves those many practices we need to meet the exigencies of that world."

—John R. Boyd, A Discourse on Winning & Losing

Data Interoperability

- **Nevada Shared Information Technology Project.**
  - Goals of improved resilience, recovery capability, efficiency and flexibility.
  - State, County, City & Agency participation.
- **Initial sharing of physical space.**
  - Constrained risks.
  - Later virtual space
- **Outside feasibility study is next.**

Data Interoperability Fundamentals

- **"Sharing before shopping"**
- **Security is crucial.**
  - Physical
  - Virtual
- **Enhanced flexibility.**
- **Enhanced efficiency.**

Logistical Interoperability

- **Offers agility in crises of unanticipated severity or effect.**
- **Some "pieces" of emergency services network standing after disasters.**
  - Can be connected to create some services.
  - Degraded services better than NO services!

"In preparing for battle I have always found that plans are useless, but planning is indispensable."

Dwight D. Eisenhower
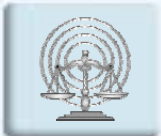
Logistical Interoperability

- **Logistical "Networks"**

  - Diversity adds resilience.

- **Emergency logistics "super nodes"**

  - Can support resources from other failed nodes to maintain capabilities.

Procedural Interoperability

- **Mutual Trust**
  - Shared motive & proven capability.
- **Intuitive Expertise**
  - "Fingertip feel."
- **Directed Focus**
  - "Dibs!"
- **"Mission Orders"**
  - Intent and leadership contract.

Communications Interoperability: Leading the Way

- **Voice Interoperability is crucial.**
  - Requires more than mere connection; must enable understanding.
- **Data Interoperability is important.**
  - Must not create overload; should be agile, flexible and secure.
- **Logistical Interoperability is valuable.**
  - Undeveloped area; Potentially enormous return on investment; Local opportunities largely untapped.
- **Procedural Interoperability is FUNDAMENTAL.**
  - We will only be able to do during crises those things we have practiced together intensely & often.
  - Improvisation **WILL** be required.

Further Reading

- **Beyond Fear: Thinking Sensibly About Security in an Uncertain World.** Bruce Schnier, 2003

- *Certain to Win.* Dr. Chet Richards (2004)

- *Boyd: The Fighter Pilot Who Changed the Art of War.* Robert Coram (2004)

- **www.belisarius.com** - website on Colonel John Boyd's work and its use in business.

- **www.d-n-i.net** - website with many of Colonel John Boyd's works
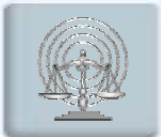
Contact Information

Dan Hawkins, Director

SEARCH Public Safety Programs

(916) 392-2555 x302

dan.hawkins@search.org

Dep. Chief Dennis Cobb

Las Vegas Metro Police Department

(702) 229-3503

d2520c@lvmpd.com