

*Why Can't  
We Talk?*

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# ***ASSESSMENT TOOL 1:***

## ***Assessing Your Level of Interoperability***

The purpose of this tool is to help you develop a basic snapshot of interoperability, to begin identifying necessary partners, and to facilitate working with those partners. This tool can best be used by a team that includes appointed and elected officials and public safety leaders from several jurisdictions, regions, or States.

Begin by asking the following questions: What types of emergencies typically occur in your jurisdiction, region, or State and which public safety agencies would respond in each of them? Some incidents like traffic accidents occur daily. How about major crimes like bank robberies or large-scale fires or disasters like hurricanes? Which agencies or personnel need to talk to one another every day? What personnel should be in communication in the first 8 hours of an emergency? What personnel will need to be added to that initial group if the emergency continues for longer than 8 hours?

To assess the level of communications interoperability within your community, region, or State, emergencies have been grouped into three categories—frequently occurring emergencies, major crimes or emergencies, or large-scale disasters or incidents

### **Frequently Occurring Emergencies**

Some types of emergencies occur on a frequent basis. These include major traffic accidents, violent crimes, hostage situations, drownings, industrial accidents, and similar incidents. Think about what types of incidents occur frequently in your jurisdiction, region, or State.

**Incidents that frequently occur:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Agencies that typically respond to these incidents:**

Law Enforcement Agencies (Police, Sheriff, FBI, State Patrol,  
Agencies from other jurisdictions, etc.)

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

**Emergency Service Agencies (Fire, Emergency Medical Services,  
Hazmat, etc.)**

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

**Public Infrastructure Agencies (Transportation, Public Works, Utility,  
etc.)**

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

Put a checkmark next to each of the agencies that can directly and  
seamlessly communicate via radio on a real-time basis with each of the  
other agencies identified.

## Major Crimes or Incidents

Major crimes or incidents include such events like bank robberies, child kidnappings, large-scale fires, chemical leaks, large-scale industrial accidents, train derailments, and similar incidents. Think about what types of major crimes or incidents have occurred or could occur.

**Major crimes or incidents that have occurred or could occur:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Agencies that have or would likely respond to these incidents:**

Law Enforcement Agencies (Police, Sheriff, FBI, State Patrol or  
Police, Agencies from other jurisdictions, etc.)

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

**Emergency Service Agencies (Fire, Emergency Medical Services,  
Hazmat, etc.)**

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

**Public Infrastructure Agencies (Transportation, Public Works, Utility,  
etc.)**

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

Put a check mark next to each of the agencies that can directly and  
seamlessly communicate via radio on a real-time basis with each of the  
other agencies identified.

## Large-Scale Disasters or Incidents

Large-scale disasters and incidents include events like hurricanes, torna-  
does, earthquakes, airplane crashes, school shootings, terrorist attacks,  
and similar incidents. Think about what types of incidents have or  
could occur.

**Large-scale disasters or incidents that have or could occur:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Agencies that would likely respond to these incidents:**

**Law Enforcement Agencies** (Police, Sheriff, FBI, State Patrol or Police, Agencies from other jurisdictions, etc.)

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

**Emergency Service Agencies** (Fire, Emergency Medical Services, Emergency Management Agencies, Hazmat, etc.)

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

**Public Infrastructure Agencies** (Transportation, Public Works, Utility, etc.)

1. \_\_\_\_\_ ☐
2. \_\_\_\_\_ ☐
3. \_\_\_\_\_ ☐
4. \_\_\_\_\_ ☐
5. \_\_\_\_\_ ☐

Put a check mark next to each of the agencies that can directly and seamlessly communicate via radio on a real-time basis with each of the other agencies identified.

	<u><b>Your Answer</b></u>	<u><b>Example</b></u>
1. Total number of agencies listed for all three types of incidents.	_____	50
2. Total number of boxes next to agencies checked	_____	10
3. Divide Line 2 by Line 1 for percentage agencies interoperable	_____	20%

While it would be ideal to attain 100 percent interoperability, each agency must make an independent assessment of how the percentage of agencies with which it achieves interoperability affects that agency's ability to perform its duties.

## **ASSESSMENT TOOL 2:**

# **Assessing Radio Communications Capability**

Radio communication systems are expensive and before a decision is made to either update or purchase a system, there must be an assessment of the current communication system and future needs. The following is a guide that builds on Assessment Tool 1 and is designed primarily for use by public safety officials who need to assess the status of the agency's or jurisdiction's system. Public officials, at all levels, can benefit from the information that this tool elicits and are encouraged to work with their public safety officials completing this assessment. This tool is not intended to answer all questions or concerns, but rather, it provides a baseline upon which planning discussions can begin. Officials using this assessment are encouraged to modify it, based on their agency's or jurisdiction's needs.

*Please note that where the term "agency" appears, it is also intended to mean jurisdiction, region, or State, depending upon the user.*

### **Section 1. Descriptive Information**

**1. Which of the following best describes the typography/terrain in which your agency operates? (check all that apply.)**

- ☐ Coastal or intracoastal waterway
- ☐ Relatively flat
- ☐ Rolling hills
- ☐ Mountainous
- ☐ Heavily forested

**2. Does your jurisdiction or a portion of your jurisdiction include many high-rise buildings?**

- ☐ Yes      ☐ No

## Section 2. Operations Information

1. Does your agency have at least one radio channel solely designated for communicating with other agencies?

☐ Yes ☐ No (If, "no," why not?) \_\_\_\_\_

If, "yes," how many channels does your agency have? \_\_\_\_\_

2. Which of the following best describes your agency's arrangement for dispatching calls?

- ☐ Agency/department does not own its own dispatch operations
- ☐ Dispatch is part of a combined dispatch center (e.g., Law Enforcement, Fire, EMS)
- ☐ Dispatch is a contracted service
- ☐ Dispatch is controlled by a commercial operator
- ☐ Other (specify) \_\_\_\_\_

3. What is the primary radio language used by your agency when communicating with other agencies or organizations?

- ☐ "Plain" English
- ☐ Code
- ☐ Other (specify) \_\_\_\_\_

4. To what extent does the use of different radio languages hinder effective communication between your agency and other agencies?  
(where 1 = "not a problem" to 5 = "major problem")

1      2      3      4      5

5. Which radio frequencies does your agency use to communicate with other public safety and/or public service organization?  
(check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Does not apply             | <input type="checkbox"/> Lowband VHF (25-50 MHz)              |
| <input type="checkbox"/> Highband VHF (150-174 MHz) | <input type="checkbox"/> Federal band UHF (406-420 MHz)       |
| <input type="checkbox"/> Lowband UHF (450-470 MHz)  | <input type="checkbox"/> Lowband UHF TV Sharing (470-512 MHz) |
| <input type="checkbox"/> 800 MHz (806-869 MHz)      | <input type="checkbox"/> Other _____                          |

6. How often does your agency have radio communication with the following levels of public safety and/or public service agencies or organizations? (For definitions of public safety and public service, see page 17.)

**PUBLIC SAFETY**

	<u>Daily</u>	<u>Weekly</u>	<u>Monthly</u>	<u>Yearly</u>	<u>Never</u>
Federal level					
State level					
Local level					

**PUBLIC SERVICE**

	<u>Daily</u>	<u>Weekly</u>	<u>Monthly</u>	<u>Yearly</u>	<u>Never</u>
Federal level					
State level					
Local level					

7. Identify the TYPES of interoperability (essential communication links within or between public safety and public service communication systems from two or more different agencies to interact with another and to exchange information according to a prescribed method to achieve predictable results) your agency has experienced during the 12 months.

**PUBLIC SAFETY**

	<u>Frequently Occurring Emergencies</u>	<u>Major Crime Emergencies</u>	<u>Large Scale Disasters</u>
Federal level			
State level			
Local level			



## PUBLIC SERVICE

	<u>Frequently Occurring Emergencies</u>	<u>Major Crime Emergencies</u>	<u>Large Scale Disasters</u>
Federal level			
State level			
Local level			

8. Does your agency have inter-governmental agreements with neighboring jurisdictions for mutually defined calls for service or disasters (e.g. mutual aid agreements)?

Calls for Service ☐ Yes ☐ No

Disasters ☐ Yes ☐ No

9. To what extent has your agency's need for interoperability with other public safety and public safety organizations changed over the past 5 years? (where 1 = decreased, 3 = no change, and 5 = increased a great deal)

1      2      3      4      5

10. Rate your agency's ABILITY to establish a radio communication link with each of the following levels of public safety and/or public service agencies/organizations. (where 1 = poor to 5 = excellent)

<b>PUBLIC SAFETY</b>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Federal level					
State level					
Local level					

<b>PUBLIC SERVICE</b>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Federal level					
State level					
Local level					

**11. Estimate the total number of public safety and/or public service agencies/organizations at each level with which your agency requires radio communication.**

Number of Agencies: (Public Safety)

Federal Level \_\_\_\_\_

State Level \_\_\_\_\_

Local Level \_\_\_\_\_

Number of Agencies: (Public Service)

Federal Level \_\_\_\_\_

State Level \_\_\_\_\_

Local Level \_\_\_\_\_

**12. Rate the ABILITY of your agency's wireless communication system to effectively handle the following categories of incidents.** (where 1 = poor to 5 = excellent) (For definition of categories, refer to Tool #1)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Frequently occurring emergencies					
Major crimes and emergencies					
Large-scale disasters or incidents					

**13. Rate your agency's OVERALL ABILITY to handle interoperability (where multiple agencies or jurisdictions must communicate or share information or data during a common incident) situations 5 years ago, today, and estimate its ability 5 years into the future. (where 1 = poor to 5 = excellent)**

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
5 years ago					
Today					
5 years from now					

**14. Based on your agency's experience, indicate the severity of each of the following obstacles to interoperability. (where 1 = not a problem to 5 = major problem)**

<u>Obstacle</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Different bands					
Human and institutional limitations					
Different communication modes (analog vs. digital)					
Different communication modes (conventional vs. trunked)					
Limitations of commercial services					
Limitations in funding					
Different coverage areas					
Political/turf issues					

15. To what extent has the availability channels (821-869 MHz) alleviated communications interoperability problems in your jurisdiction or State? (where 1 = not at all to 5 = extremely)

1      2      3      4      5

## Section III. Information and Training

1. How important is each source of information to your agency when planning for the purchase of wireless communications technologies? (where 1 = not important to 5 = extremely important)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Equipment manufacturers					
Professional journals/ magazines					
Professional /trade conferences					
Independent consultants					
Other government agencies					
Local college or university					
Internal knowledge					
Other					

2. Does your agency participate in joint training exercises with other agencies or organizations that involve the actual use of wireless communications equipment?

☐ Yes      ☐ No (skip to question #5)

3. Regarding question #2, indicate the levels of other agencies/organizations that participate in the joint training exercises. Include both government and non-government agencies.

☐ Federal Level      ☐ State Level      ☐ Local Level

4. In what year did your agency most recently participate in joint training exercises that involved the actual use of wireless communication equipment? \_\_\_\_\_

5. How well do you believe your agency's training has prepared your personnel to handle communication interoperability situations?  
(where 1 = poor to 5 = excellent)

1      2      3      4      5

6. How familiar is your agency with the following? (where 1= no knowledge to 5 = very knowledgeable)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Project 25 Standards					
FCC Refarming efforts					
FCC Frequency Application Process					
NPSPAC Regional Planning Process					
FCC Internet Sites					
TIA/EIA- 102 Specifications					
FCC Spectrum Allocation 846-06 MHz)					

## Section IV. Communications Systems

1. Indicate the types of communication equipment used by your agency (check all that apply).

- |   |   |
|---|---|
| <input type="checkbox"/> Handheld land portable radio | <input type="checkbox"/> Vehicle-mounted mobile radio         |
| <input type="checkbox"/> Pagers                       | <input type="checkbox"/> Citizens band radios                 |
| <input type="checkbox"/> Amateur radio                | <input type="checkbox"/> Cellular phone/voice                 |
| <input type="checkbox"/> Telephone line (landline)    | <input type="checkbox"/> Mobile data terminal (Dumb-terminal) |
| <input type="checkbox"/> Fax line                     | <input type="checkbox"/> Helicopter radio                     |
| <input type="checkbox"/> Cellular fax                 |   |
| <input type="checkbox"/> Mobile laptop computer       |   |
| <input type="checkbox"/> Personal Digital Assistants  |   |
| <input type="checkbox"/> Fixed wing aircraft radio    |   |
| <input type="checkbox"/> Other                        |   |

2. Does your agency **SHARE** the infrastructure for its land mobile radio base system with other organizations?

- ☐ Yes      ☐ No (go to question #4)

3. How involved is your agency in the decisionmaking process related to the operation of your land mobile radio system? (where 1 = not at all to 5 = extensively)

1      2      3      4      5

4. Which of the following best describes your agency's communications arrangements?

- ☐ Independently owned and operated communications center used exclusively by our department.
- ☐ Part of a communications center that serves several public safety and/or public service organizations in our jurisdiction.
- ☐ Part of a multi-agency, multijurisdictional shared communications center.
- ☐ Other

5. Does your agency own or lease its **PRIMARY** land mobile radio system?

- ☐ Own      ☐ Lease      ☐ Does not apply

6. How many of the following are in your land mobile radio system?

\_\_\_\_\_ Base Stations

\_\_\_\_\_ Repeaters

\_\_\_\_\_ Control Stations

7. Approximately how old is your CURRENT land mobile radio system?

\_\_\_\_\_ Year(s) Old

8. Does your agency use BOTH analog and digital radio systems?

Analog ☐ Yes ☐ No

Digital ☐ Yes ☐ No

9. Which best describes your PRIMARY land mobile radio system?

☐ Conventional ☐ Trunked

10. Identify the radio frequencies your agency CURRENTLY uses for VOICE-ONLY communication by indicating the current NUMBER of channels in each band.

Currently Uses

Current # of VOICE-ONLY Channels

Lowband VHF (25-50 MHz)

\_\_\_\_\_

HighbandVHF (150-174 MHz)

\_\_\_\_\_

UHF (406-512 MHz)

\_\_\_\_\_

800 MHz (806-869 MHz)

\_\_\_\_\_

Other:

\_\_\_\_\_

11. Identify the radio frequencies your agency CURRENTLY uses for DATA-ONLY communication by indicating the current NUMBER of channels in each band.

Currently Uses

Current # of DATA-ONLY Channels

Lowband VHF (25-50 MHz)

\_\_\_\_\_

HighbandVHF (150-174 MHz)

\_\_\_\_\_

UHF (406-512 MHz)

\_\_\_\_\_

800 MHz (806-869 MHz)

\_\_\_\_\_

Other:

\_\_\_\_\_

12. Identify the radio frequencies your agency CURRENTLY uses for ALTERNATE VOICE & DATA by indicating the current NUMBER of channels in each band.

Currently Uses

Current # of ALTERNATE  
VOICE & DATA Channels

Lowband VHF (25-50 MHz)	_____
HighbandVHF (150-174 MHz)	_____
UHF (406-512 MHz)	_____
800 MHz (806-869 MHz)	_____
Other:	_____

13. Does your agency have the ability to patch across channels?

☐ Yes      ☐ No (skip to question #18)

14. How many simultaneous cross patches can be set up?

\_\_\_\_\_

15. Rate the effectiveness of cross patches as a tool for achieving interoperability (where 1 = not effective to 5 = extremely effective)

1      2      3      4      5

16. Is a dispatcher REQUIRED to set up and break down the patch?

☐ Yes      ☐ No



**17. How serious are the following problems regarding your land-mobile radio system (where 1 = not a problem to 5 = major problem)?**

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Not enough channels					
Not enough talk groups, if trunked					
Dead spots					
Fading					
Frequency interference					
Static					
Battery problems					
Not enough equipment					
Outdated equipment					
Equipment size/weight					
Different types of equipment					
Operational difficulty					

**18. If you indicated “not enough channels” in question #17 as a problem, estimate the number of ADDITIONAL channels your agency needs for each of the following:**

Additional VOICE-ONLY channels \_\_\_\_\_

Additional DATA-ONLY channels \_\_\_\_\_

Additional ALTERNATE VOICE & DATA channels \_\_\_\_\_

**19. To what extent does topography/terrain hinder the effectiveness of your land mobile radio base system (where 1 = no problem to 5 = major problem)?**

1      2      3      4      5

20. To what extent does the presence of high-rise buildings hinder the effectiveness of your land mobile radio base system (where 1 = no problem to 5 = major problem)?

1      2      3      4      5

21. Who handles your agency's RADIO SPECTRUM LICENSING issues?

- ☐ My agency
- ☐ A regional group
- ☐ The county
- ☐ The State
- ☐ Other \_\_\_\_\_
- ☐ Don't know

22. Does your agency PAY outsiders for radio spectrum frequency coordination services?

- ☐ Yes      ☐ No

23. How many times does your agency interact with a radio spectrum frequency coordinator in a typical year? \_\_\_\_\_ times a year

24. Indicate ALL services your agency USES and PLANS TO USE within the next five (5) years.

	<u>Currently Use</u>	<u>Plan to Use</u>
Cellular Digital Packet Data (CDPD)	___	___
Personal Communications Systems (PCS)	___	___
Specialized Mobile Radio (SMR)	___	___
Mobile Satellite System	___	___
Global Positioning System (GPS)	___	___
Paging	___	___
Cellular Switched Data	___	___
Cellular/Voice	___	___
Local Multi-Point Distribution Service	___	___
<i>LMDS)/Multi-Point Multi-Channel</i>		
<i>Distribution Services (MMDS)</i>		

25. Does your agency use a paging system for emergency "alerting" of personnel?

- ☐ Yes      ☐ No (skip to question #32)

**26. Which of the following best describes your agency's paging system?**

- ☐ Tone and/or voice
- ☐ Alfa-numeric digital
- ☐ Both
- ☐ Other \_\_\_\_\_

**27. Rate your agency's satisfaction with the performance of the paging system** (where 1 = not at all satisfied to 5 = extremely satisfied).

1      2      3      4      5

**28. Does your agency use the Internet for official business?**

- ☐ Yes
- ☐ No

**29. Does your agency have essential information that needs to be accessed in real-time by mobile users?**

- ☐ Yes
- ☐ No

**30. Does your agency have plans to replace or substantially upgrade its land mobile radio system within the next ten years?**

- ☐ Yes
- ☐ No

If "yes," describe the purposes for which it is used.

---

**31. What is your agency's preference for its NEXT land mobile radio system?**

- ☐ Analog
- ☐ Digital
- ☐ Don't know

**32. Does your agency plan to use BOTH analog and digital radio systems?**

- ☐ Yes
- ☐ No
- ☐ Don't know

**33. What is your agency's preference for its NEXT land mobile radio system?**

- ☐ Conventional (not trunked)
- ☐ Trunked
- ☐ Don't know

34. To what extent is funding a concern for your agency in upgrading its land mobile radio system (where 1 = not a problem to 5 = major problem)?

1      2      3      4      5

35. What does your agency use to fund its current land mobile radio system? Check all that apply.

- ☐ State funding (if local government) \_\_\_\_\_ Percent of total
- ☐ Federal funding \_\_\_\_\_ Percent of total
- ☐ General fund budget appropriations \_\_\_\_\_ Percent of total
- ☐ Capital improvement budget \_\_\_\_\_ Percent of total
- ☐ Bond financing \_\_\_\_\_ Percent of total
- ☐ Special fees or taxes (Please specify) \_\_\_\_\_ Percent of total
- ☐ Other \_\_\_\_\_ Percent of total
- ☐ Don't know

36. How does your agency plan to fund its next land mobile radio system?

- ☐ State funding \_\_\_\_\_ Percent of total
- ☐ Federal funding \_\_\_\_\_ Percent of total
- ☐ General fund budget appropriations \_\_\_\_\_ Percent of total
- ☐ Capital improvement budget \_\_\_\_\_ Percent of total
- ☐ Bond financing \_\_\_\_\_ Percent of total
- ☐ Special Fees or taxes  
(Please specify) \_\_\_\_\_ Percent of total
- ☐ Other \_\_\_\_\_ Percent of total
- ☐ Don't know

37. What is the total number of mobile data terminals and/or laptop computers your agency CURRENTLY uses?

\_\_\_\_\_ Mobile Data Terminals (Dumb Terminals)  
\_\_\_\_\_ Mobile Laptop computers

38. Regarding mobile data terminals and mobile laptop computers, identify the types of WIRELESS DATA communication (not voice) your agency currently USES and PLANS TO USE within the next 2 years?

	<u>Currently Use</u>	<u>Plan to Use</u>
Free Text	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Database Information	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Still Images (e.g.  
photos or maps)

☐ Yes ☐ No ☐ Yes ☐ No

E-mail

☐ Yes ☐ No ☐ Yes ☐ No

Report Writing

☐ Yes ☐ No ☐ Yes ☐ No

**39. How important will interoperability ISSUES be to your agency when it purchases its next land mobile radio system (where 1 = not important to 5 = extremely important)?**

1      2      3      4      5

**40. Has the lack of wireless communications interoperability ever hampered your agency's ability to respond to a call?**

☐ Yes ☐ No

**The following questions provide the opportunity for a narrative description of interoperability issues and problems that affect your agency or jurisdiction.**

1. What are the wireless communications interoperability issues for your agency? How have you solved them?

2. Does the lack of wireless radio interoperability affect your department's ability to interact with other agencies in surrounding jurisdictions? Have adjustments been made?

Once these questions have been answered and additional information gathered, the planning process can begin on a more firm foundation. As a strategic plan for radio communications is being developed, refer back to the report section entitled "What Communications System Resources Do You Have?" and follow the steps provided.

This tool was modified from the following sources:

"State and Local Law Enforcement Wireless Communications and Interoperability: A Quantitative Analysis," National Institute of Justice, Taylor, Epper, & Tolman, NCJ 168961 Appendix D, January 1998.

"Fire and EMS Communications Interoperability," PSWN Program Information Brief, Appendix D, Department of Justice and Department of the Treasury, Washington, D.C. April 1999.

## ***ASSESSMENT TOOL 3:***

# ***Assessing Your Current Commitment of Resources***

Gathering information on how much your community, region, or State is currently spending on public safety radio communications is a first step in determining how much it will cost to develop interoperability in your area. Individual costs will depend on the state of communications in your community, region, or State, and the long-term communications plan. Committed resource information is usually researched and analyzed by the public communications professionals.

Once you identify what your city, county, or State is spending, you can meet with neighboring city, county, or State public safety communication officials to discuss partnering opportunities and to share information.

1. Describe the customers and users of the public safety communication process. Customers will typically include the subset of the public served by the communications program, while users will include department or division staff involved in the program and city, county, or State, or other organizations requiring information from the program.
2. What similar communication systems exist at this time? Describe any overlaps of functionality and capability.
3. List communication system alternatives (other than the proposed project) that exist to address this public safety need.
4. What service alternatives exist in lieu of the proposed project?
5. Can this project be incorporated into a multiple use system? What city, county, State, or Federal services would most benefit by being incorporated in the same application/system?
6. Describe any efforts undertaken to review and revise existing public safety communications processes prior to undertaking this project.

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# ***Reference and Source Materials***

"9/11 Exposed Deadly Flaws in Rescue Plan," The New York Times, July 7, 2002.

"Analysis of Fire and EMS Communications Interoperability," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"A Progress Report on Public Safety Spectrum—Final," Public Safety Wireless Network Program, Department of Justice and Department of Treasury. November 2001.

"Can We Talk? Public Safety and the Interoperability Challenge," National Institute of Justice. April 2000.

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"Learning to Talk, The Lessons of Interoperability in Public Safety Communication Systems," Donald A. Lund, The ATLAS Project, Advanced Technology in Law and Society, Justiceworks, The University of New Hampshire, April 2002.

"Mission Possible: Strong Governance Structures for the Integration of Justice Information Systems," Department of Justice, Office of Justice Programs, and Public Technologies International. 2001

"Patching Your Way to a Fix," Tech Beat, Fall 2000.

"Public Safety: Communications Funding Awareness Guide," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"Public Safety: Communications Security Awareness Guide," Public Safety Wireless Network, Department of Justice and Department of Treasury.



"Public Safety: Wireless Communications Standards Awareness Guide," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"Public Safety: Coordination and Partnerships Awareness Guide," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"Public Safety: Radio Spectrum—A Vital Resource for Saving Lives and Protecting Property," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"Public Safety Radio Frequency Spectrum: Highlighting Current and Future Needs – Final Report," Public Safety Wireless Network, January 2000.

"Public Safety and Wireless Communications Interoperability: Critical Issues Facing Public Safety Communications," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"Public Safety Wireless Communications Systems: A Priority Investment for America's Future Safety," Public Safety Wireless Network, Department of Justice and Department of Treasury.

"Public Safety WINS: Wireless Interoperability National Strategy—Policy Implications: Spectrum," Public Safety Wireless Network Program, Department of Justice and Department of Treasury. February 2001.

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The Report of Governor Bill Owens, Columbine Review Commission, Hon. William H. Erickson, Chairman, May 2001.

"Report on Funding Strategy for Public Radio Safety Radio Communications," Booz-Allen & Hamilton. Washington, DC. October 1998.

"State and Local Law Enforcement Wireless Communications and Interoperability: A Quantitative Analysis," National Institute of Justice. January 1998.

"Understanding Wireless Communications in Public Safety," National Institute of Justice. March 2000.

# ***Recommended Websites***

The following websites are recommended for additional information on public safety wireless communications and interoperability.

## **Arlington County, Virginia**

<http://www.co.arlington.va.us/fire/edu/about/docs/aar.htm>

This report describes Arlington County, Virginia's response to the September 11, 2001 attack on the Pentagon.

## **AGILE**

<http://www.agileprogram.org>

The National Institute of Justice's AGILE Program has a mission to assist State and local law enforcement agencies to effectively and efficiently communicate with one another across agency and jurisdictional boundaries. It is dedicated to studying interoperability options and making valuable information available to law enforcement, firefighters, and emergency technicians in different jurisdictions in communities across the country.

## **Association of Public Safety Communications Officials - International, Inc. (APCO)**

<http://www.apcointl.org>

The Association of Public Safety Communications Officials - International, Inc. — APCO International — is the world's oldest and largest not-for-profit professional organization dedicated to the enhancement of public safety communications.

## **Capital Wireless Integrated Network (CapWIN)**

<http://www.capwinproject.com>

The Capital Wireless Integrated Network (CapWIN) project is a partnership between the States of Maryland and Virginia and the District of Columbia to develop an integrated transportation and criminal justice information wireless network. This unique project will integrate transportation and public safety data and voice communication systems in two States and the District of Columbia, and will be the first multi-

state transportation and public safety integrated wireless network in the United States.

#### **Federal Communication Commission**

[http://www.fcc.gov/Bureaus/Engineering\\_Technology/Orders/1997/fcc97421.txt](http://www.fcc.gov/Bureaus/Engineering_Technology/Orders/1997/fcc97421.txt)

Testimony before the FCC in the matter of Reallocation of Television Channels 60-69, the 746 806 MHz Band (adopted December 31, 1997)

<http://www.wireless.fcc.gov>

The Wireless Telecommunications Bureau (WTB) handles nearly all FCC domestic wireless telecommunications programs and policies.

#### **National Law Enforcement and Corrections Technology Center (NLECTC)**

<http://www.nlectc.org>

Created in 1994 as a component of the National Institute of Justice's (NIJ's) Office of Science and Technology, the National Law Enforcement and Corrections Technology Center (NLECTC) system serves as the "honest broker" offering support, research findings, and technological expertise to help State and local law enforcement and corrections personnel perform their duties more safely and efficiently.

#### **National Public Safety Telecommunications Council (NPSTC)**

<http://www.npstc.du.edu>

The National Public Safety Telecommunications Council (NPSTC) is a federation of associations representing public safety telecommunications. The purpose of NPSTC is to follow up on the recommendations of the Public Safety Wireless Advisory Committee (PSWAC). In addition, NPSTC acts as a resource and advocate for public safety telecommunications issues

### **National Telecommunications and Information Administration**

<http://www.ntia.doc.gov/publicsafety>

The National Telecommunications and Information Administration (NTIA), an agency of the Department of Commerce, is the Executive Branch's principal voice on domestic and international telecommunications and information technology issues. NTIA works to spur innovation, encourage competition, help create jobs, and provide consumers with more choices and better quality telecommunications products and services at lower prices.

### **Project Hoosier SAFE-T**


<http://www.in.gov/ipsc/safe-t/>

Project Hoosier SAFE-T is an initiative of the Integrated Public Safety Commission in Indiana to develop a statewide voice and data public safety communication system. It is designed to meet the needs of local, State, and Federal public safety agencies, including law enforcement, fire, EMS, emergency management, transportation, health, and hazardous materials.

### **Public Safety Wireless Network (PSWN)**

<http://www.pswn.gov>

PSWN is a joint Department of Justice and Department of Treasury program dedicated to the establishment of a seamless, coordinated public safety communications system for the safe, effective, and efficient protection of life and property.



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# ***Federal Funding for Communications and Information-Sharing Planning, Development, and Equipment***

## **Bureau of Justice Assistance Local Law Enforcement Block Grants (LLEBG)**

Funds from the LLEBG program may be used for procuring equipment, technology, and other material directly related to basic law enforcement functions. <http://www.ojp.usdoj.gov/BJA/>

## **Making Officer Redeployment Effective (COPS MORE) Grants**

This grant program, provided through the Community Oriented Policing Services (COPS) office, is designed to expand the time available for community policing by current law enforcement officers through the funding of technology, equipment, and support personnel. <http://www.usdoj.gov/cops/>

## **Office for Domestic Preparedness Equipment Grant Program**

The goal of the ODP Equipment Grant Program is to provide funding to enhance the capacity of State and local jurisdictions to respond to, and mitigate the consequences of, incidents of domestic terrorism involving the use of a Weapon of Mass Destruction (WMD). Communications equipment is included on the authorized equipment purchase lists for these ODP grants. <http://www.ojp.usdoj.gov/odp/>

## **Office of Justice Programs (OJP) Information Technology Initiatives**

The OJP Information Technology Initiatives web site offers access to timely and useful information on the information sharing process, initiatives, and technological developments. The funding section of this site provides information on both Federal and private funding sources, examples of innovative funding ideas, and tips on researching funding legislation. <http://www.it.ojp.gov/>

## **Office of National Drug Control Policy, Counterdrug Technology Assessment Center (CTAC) Technology Transfer Program**

The CTAC Technology Transfer Program assists State and local law enforcement agencies in obtaining the necessary equipment and training for counterdrug deployments and operations. <http://www.whitehousedrugpolicy.gov/>

### **Technology Opportunities Program (TOP)**

The Technology Opportunities Program (TOP) from the National Telecommunications and Information Administration gives grants for model projects demonstrating innovative uses of network technology. <http://www.ntia.doc.gov/top/>

### **U.S. Fire Administration Assistance to Firefighters Grant Program**

The purpose of the program is to award one-year grants directly to fire departments of a State to enhance their abilities with respect to fire and fire-related hazards. <http://www.usfa.fema.gov/grants>

### **Federal Emergency Management Agency (FEMA)**

This site offers information on Federal disaster assistance and funding. <http://www.fema.gov/>

### **Justice Technology Information Network (JUSTNET)**

The JUSTNET web site lists many grants and funding sources in the Virtual Library. <http://www.justnet.org>

### **National Institute of Justice (NIJ) Funding Opportunities**

NIJ is the research and development agency of the U.S. Department of Justice and is the only Federal agency solely dedicated to researching crime control and justice issues. This page lists the most recent solicitations issued by NIJ. <http://www.ojp.usdoj.gov/nij/>

### **Office of Justice Programs (OJP)**

On this page, you will find links to current funding opportunities at OJP listed by their source and various grant related forms and information. <http://www.ojp.usdoj.gov/>

### **Office of Juvenile Justice and Delinquency Prevention (OJJDP)**

This site lists funding announcements from OJJDP. <http://ojjdp.ncjrs.org/>

### **United States Department of Justice (DOJ)**

DOJ offers funding opportunities to conduct research, to support law enforcement activities in state and local jurisdictions, to provide training and technical assistance, and to implement programs that improve the criminal justice system. <http://www.usdoj.gov/>

### **Criminal Justice Funding Report**

Criminal Justice Funding Report is a biweekly report that highlights various funding sources for justice issues. Subscriptions and information can be obtained at <http://capitolcitypublishers.com/news/crime/>

# ***Glossary of Terms***

**antenna**

Any structure or device used to collect or radiate electromagnetic waves.

**band**

In communications, the spectrum between two defined limited frequencies. For example, the Ultra High Frequency (UHF) is located from 300 MHz to 3,000 MHz in the radio frequency spectrum.

**channel**

A single unidirectional or bidirectional path for transmitting or receiving, or both, of electrical or electromagnetic signals.

**communications system**

A collection of individual communications networks, transmission systems, relay stations, tributary stations, and data terminal equipment usually capable of interconnection and interoperation to form an integrated whole. Note: The components of a communications system serve a common purpose, are technically compatible, use common procedures, respond to controls, and operate in unison.

**coverage**

The geographic area included within the range of a wireless radio system

**data**

Representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. Any representations such as characters or analog quantities to which meaning is or might be assigned.

**dead spots (or zones)**

The area, zone, or volume of space that is within the expected range of a radio signal, but in which the signal is not detectable and therefore cannot be received. Common causes of dead spots include depressions in the terrain and physical structures.

**digital signal**

A signal in which discrete steps are used to represent information.



### **frequency**

For a periodic function, the number of cycles or events per unit time.

### **frequency bands**

Frequency bands where land mobile radio systems operate in the United States including the following:

High HF	25-29.99 MHz
Low VHF	30-50 MHz
High VHF	150-174 MHz
Low UHF	450-470 MHz
UHF TV Sharing	470-512 MHz
700 MHz	764-776/794-806 MHz
800 MHz	806-869 MHz.

### **infrastructure**

When relating to radio communications systems, the hardware and software needed to complete and maintain the system.

### **interference**

In general, extraneous energy, from natural or man-made sources, that impedes the reception of desired signals.

### **interoperability**

The ability of public safety agencies to be able to talk to one another—to exchange voice and/or data with one another on demand and in real time.

### **interstate compact agreement**

A written contract between states to cooperate on a policy issue or program that extends across and through state boundaries.

### **joint powers act**

A written contractual agreement entered into between two or more public agencies subject to any constitutional or legislative restriction imposed upon any of the contracting public agencies.

### **kilohertz (KHz)**

A unit of frequency denoting one thousand (10<sup>3</sup>) Hz.

### **megahertz (MHz)**

A unit of frequency denoting one million (10<sup>6</sup>) Hz.

**memorandum of understanding (MOU)**

An agreement of cooperation between organizations defining the roles and responsibilities of each organization in relation to the other or others with respect to an issue over which the organizations have concurrent jurisdiction.

**pager**

A communications device in which the intended receiver is alerted to receive a message or return a call.

**patch**

A control center subsystem that permits a mobile or portable radio on one channel to communicate with one or more radios on a different channel through the control center console.

**proprietary software**

Signaling protocol or software that is unique to a manufacturer and incompatible with other manufactured systems.

**protocol**

A set of unique rules specifying a sequence of actions necessary to perform a communications function.

**public officials**

Public officials represent or work for government entities often in executive roles. Public officials include elected and appointed officials at every level of government working to serve the public in a variety of roles, such as council members, police chiefs, fire chiefs, sheriffs, governors, chief information officers, mayors, and chief communications officers.

**public safety service providers**

Persons who perform emergency first response missions to protect and preserve life, property, and natural resources and to serve the public welfare through Federal, State, or local governments as prescribed by law. Public safety service providers also include non-governmental organizations who perform public safety functions on behalf of the government. For example, a number of local governments contract with private groups for emergency medical services.

**public safety support providers**

Includes those whose primary mission might not fall within the classic public safety definition, but whose mission may provide vital support to the general public and/or the public safety official. Law enforce-

ment, fire, and EMS would fit the first category, while transportation or public utility workers would fit the second.

**radio cache**

A portable or permanent storage facility for radios.

**radio channel**

An assigned band of frequencies sufficient for radio communication.

Note 1: The bandwidth of a radio channel depends upon the type of transmission and the frequency tolerance. Note 2: A channel is usually assigned for a specified radio service to be provided by a specified transmitter.

**radio equipment**

As defined in Federal Information Management Regulations, any equipment or interconnected system or subsystem of equipment (both transmission and reception) that is used to communicate over a distance by modulating and radiating electromagnetic waves in space without artificial guide. This does not include such items as microwave, satellite, or cellular telephone equipment.

**radio frequency (RF)**

Any frequency within the electromagnetic spectrum normally associated with radio wave propagation.

**radio communication**

Telecommunication by means of radio waves.

**signal**

The detectable transmitted energy which carries information from a transmitter to a receiver.

**spectrum**

The usable radio frequencies in the electromagnetic distribution.

Specific frequencies have been allocated to the public safety community. They include:

High HF	25-29.99 MHz
Low VHF	30-50 MHz
High VHF	150-174 MHz
Low UHF	450-470 MHz
UHF TV Sharing	470-512 MHz
700 MHz	764-776/794-806 MHz
800 MHz	806-869 MHz

**system**

Any organized assembly of resources and procedures united and regulated by interaction of interdependence to accomplish a set of specific functions.

**trunked radio system**

A system that integrates multiple channel pairs into a single system. When a user wants to transmit a message, the trunked system automatically selects a currently unused channel pair and assigns it to the user, decreasing the probability of having to wait for a free channel for a given channel loading.

## ***Acronyms***

Throughout the main report and appendices, the following acronyms have been used.

COG	Council of Governments
EIA	Electronics Industry Association
EMS	Emergency Medical Services
FCC	Federal Communications Commission
GHz	Gigahertz
MHz	Megahertz
KHz	Kilohertz
MOU	Memorandum of Understanding
NCIC	National Crime Information Center
NPSAC	National Public Safety Advisory Committee
PDA	Personal Digital Assistant
PSWN	Public Safety Wireless Network
RF	Radio Frequency
ROI	Return on Investment
TIA	Telecommunications Industry Association
UHF	Ultra High Frequency Band
VHF	Very High Frequency

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# Acknowledgements

## **National Task Force on Interoperability Membership**

The National Task Force on Interoperability (NTFI), a task force comprising members from 18 national associations, State and local elected and appointed officials, and public safety officials, met several times in 2002 to engage in an interactive dialogue on communications interoperability. The discussions provided an opportunity for public policymakers to partner their efforts with those of the public safety community to address interoperability issues in a more comprehensive way. Through this dialogue, NTFI developed this guide for public officials to raise awareness about the importance of interoperability, to provide the basic information that is necessary to understand the impact of this issue on their constituencies, and to provide guidance about the initial steps to take in developing interoperable public safety radio communication systems. It is hoped that this guide will serve as a catalyst for public officials to begin other, continuing dialogues with public officials in their localities, regions, and States to develop collaborative solutions.

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*“The task force brings local and State elected and appointed officials together with representatives of the public safety community to develop national strategies for solving this critical public safety need.”*

*Harlin McEwen, Chair, International Association of Chiefs of Police Communications Committee Communications Advisor, MCC, NSA, MCSA*



*"We are working to get beyond the technical jargon to develop a commonsense language that the average person can understand. Quite simply, our task is to find ways to achieve real time communication between different communities, jurisdictions, and responders so we can save more lives in a crisis."*

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This guide, *Why Can't We Talk? Working Together To Bridge the Communications Gap To Save Lives*, it's Supplemental Resources, and it's companion brochure, *When They Can't Talk, Lives Are Lost*, are a collaborative effort of the following major associations for local and State elected and appointed officials and public safety officers.

For more information and to obtain a copy of the guide, brochure or supplemental resources, please visit [www.agileprogram.org/ntfi](http://www.agileprogram.org/ntfi)

