Tactical Interoperable Communications Scorecards Summary Report and Findings

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Homeland Security

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EXECUTIVE SUMMARY

The tactical interoperable communications scorecard assesses the maturity of tactical interoperable communications capabilities in 75 urban/metropolitan[1] areas. These scorecards were developed by subject matter expert panels that reviewed documentation on current communications plans, exercises, and a self-assessment to arrive at consensus findings and recommendations for each region on how to best improve that region's communications capabilities. These scorecards and the recommendations included are being distributed directly to each of the urban/metropolitan areas to focus their regional efforts to improve tactical interoperable communications. The Department of Homeland Security (DHS) is using these scorecards to focus technical assistance programs and target specific areas of improvement in communications interoperability.

Overall, the scorecard results show that urban/metropolitan areas have come a long way in improving their tactical interoperable communications capabilities. As documented in the *SAFECOM National Baseline Assessment*, the technology exists to permit interoperable communications, but solutions are often not available regionally and are far from seamless in many areas. Continued training on available technical solutions and procedures for their use is critical to operational success. Even in areas that have demonstrated success at the tactical, command-level of communications interoperability, there is still work to be done. Multi-agency communications have been addressed within many of these jurisdictions, but regionalizing the existing communications strategies to identify longer term interoperability goals across multiple jurisdictions and levels of government still needs to be addressed.

The scorecard evalution specifically focuses on Governance, Standard Operating Procedures (SOP), and Usage elements of the *SAFECOM Interoperability Continuum*. Preliminary findings for these areas include—

Governance—Areas with mature governance structures have advanced further in implementing shared systems/solutions that facilitate regional communications. Regionalized strategic plans are largely not in place and should be developed for communications interoperability with careful consideration for how investments can be shared across the region.

SOPs—For many of the urban areas, the Tactical Interoperable Communications Plans (TICP) developed through the Interoperable Communications Technical Assistance Program (ICTAP) provided the first formal, regionwide communications interoperability SOPs. Additional steps should be taken to ensure that these procedures (as well as those outlined in the National Incident Management System) are fully instituted at the command and responder levels.

Usage—The proficiency in the use of communications interoperability equipment and accompanying procedures varies by the types of equipment used and is increasingly complex as additional agencies are included in response efforts. In addition, almost no region had completed a communications-focused exercise before the TICP validation exercise, which meant that the areas had no specific practice using their interoperable communications capabilities.

A more comprehensive analysis of the scorecards will be developed during the second quarter of fiscal year (FY) 2007 to support the scorecards provided to the urban/metropolitan areas and to outline additional trends in the data and scorecards. With this information, DHS will continue to align its programs and resources to best address the communications needs of first responders.

[1] Urban areas are those areas that were previously defined under the FY 2005 Homeland Security Grant Program. Metropolitan areas were not part of UASI but were selected by each state to participate in the Office of Grants and Training TICP process.

INTRODUCTION

The Tactical Interoperable Communications Scorecard represents the first measurement of the maturity of communications interoperability in urban/metropolitan areas across the Nation. The results show that urban/metropolitan areas have come a long way in developing their tactical interoperable communications capabilities. As reiterated in the *SAFECOM National Baseline Assessment*, technology exists to permit interoperable communications, but solutions are often not available regionally and are far from seamless in many areas. The scorecards confirm this fact and show that continued training on available technical solutions and their procedures for use is critical to operational success. In areas that have demonstrated success at the tactical, command-level of communications interoperability, there is still work to be done. The scorecard process highlighted how multi-agency communications has been addressed within many jurisdictions, but regionalizing the existing communications strategies to identify longer term interoperability goals across multiple jurisdictions and levels of government should be addressed.

The Need for a Scorecard

The tactical interoperable communications[2] scorecard effort executes a pledge to provide each urban area with a scorecard made by Department of Homeland Security (DHS) Secretary Michael Chertoff, while speaking to the attendees at the Tactical Interoperable Communications Conference in May 2006. To fulfill this pledge, the DHS Office of Grants and Training (G&T), in consultation with SAFECOM and the Wireless Management Office (WMO), developed a scorecard that assesses the maturity of tactical interoperable communications capabilities in 75 urban/metropolitan[3] areas.

> ***"By the end of this year, each urban area is going to get a scorecard… that will identify gaps and help us to determine the improvements we need to make in the near term."***
>
> **Secretary Michael Chertoff—Tactical Interoperable Communications Conference, May 8, 2006**

***Tactical Interoperable communications** is defined as the rapid provision of on-scene, incident-based, mission-critical voice communications among all first responder agencies (i.e., emergency medical services [EMS], fire, and law enforcement), as appropriate for the incident.*

The scorecard provides an assessment of the progress each urban/metropolitan area has individually achieved with its available means of tactical interoperable communications across three elements (Governance, Standard Operating Procedures [SOP], Usage) of the SAFECOM Interoperability Continuum. The scorecard also provides recommendations on how to best improve an urban/metropolitan area's capabilities in the immediate future using existing technologies.

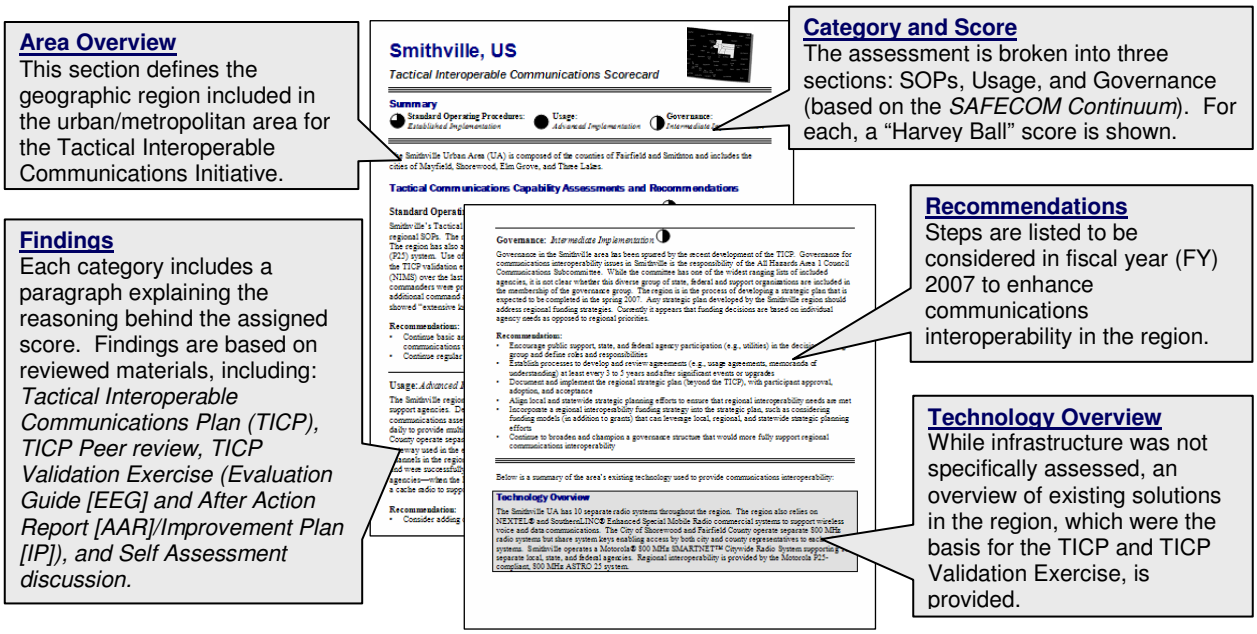
Scorecard Creation

Each scorecard is composed of three main sections. The first section, the Summary, provides a map of the urban/metropolitan area, summary results, and a description of the jurisdictions that comprise the area. The second section, the Findings, includes details on the successes and challenges faced by the urban/metropolitan area, followed by recommendations for the area to

[2] Note that tactical interoperability in this context does not address events that result in catastrophic failure or loss of equipment within the urban/metropolitan area.

[3] Urban areas are those areas that were previously defined under the Urban Area Security Initiative (UASI). Metropolitan areas were not part of UASI, but were selected by each state to participate in the G&T Tactical Interoperable Communications Plan process.

consider when taking steps to improve its interoperable communications capabilities. The final section, Technology Overview, summarizes the communications systems and technologies used in the urban/metropolitan area to achieve interoperability. In Appendices A and B, the scorecard results are organized by urban, metropolitan, and territory areas. The detailed scorecards are provided directly to representatives of the urban/metropolitan areas.



The scorecard is based on the SAFECOM Interoperability Continuum and the National Interoperability Baseline Survey[4] Interoperability Maturity Measurement Model. Three of the five Continuum elements were measured: Governance, SOPs, and Usage.

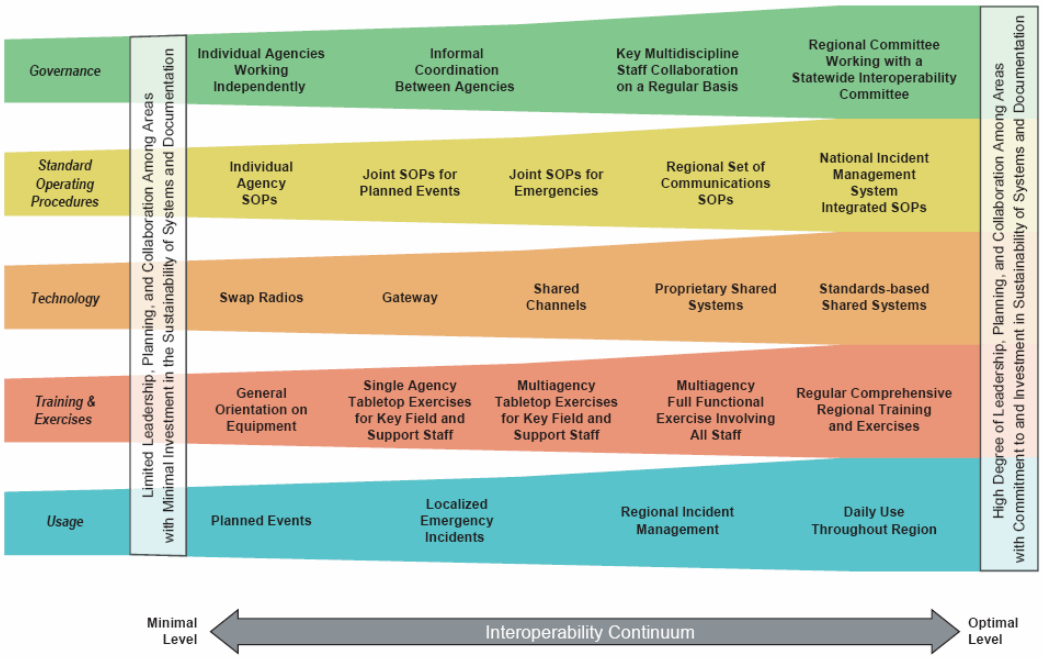
Achieving Communications Interoperability with Existing Technology

The results of the National Baseline Assessment conducted by the SAFECOM Program show that most agencies have at least a minimum technological capability to achieve tactical interoperable communications. Whether through mature, shared systems or simply through swapped radios, the technology that many agencies possess is not the primary issue hampering communications interoperability. Moreover, each urban/metropolitan area has different technology solutions because achieving interoperability is dependent on the existing types of communications equipment and infrastructures each agency employs. Therefore, the voice communications solution that would be considered ideal in one area could be unsuited for another. As the interdependencies of the Interoperability Continuum illustrate, it is the ability to use technology during incident response that allows an area to have improved tactical interoperable communications.

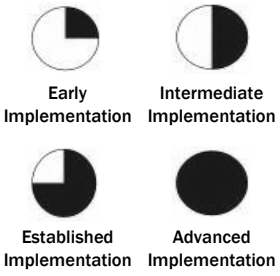
Therefore, while the recommendations section of the scorecard will address an urban/metropolitan area's technology gaps identified by the review panel, it also focuses on how best to improve tactical interoperable communications with that area's existing technologies.

[4] This survey assessed the capacity for communications interoperability among law enforcement, fire, and emergency medical services (EMS) first responders in the 50 states and the District of Columbia.

SAFECOM Interoperability Continuum



Maturity Levels of Tactical Interoperable Communications



The scorecard employs a capabilities maturation model with four stages—Early Implementation, Intermediate Implementation, Established Implementation, and Advanced Implementation. Each of the three elements (Governance, SOPs, and Usage) has its own measure, the results of which are displayed using the Harvey Ball representations illustrated to the right. Because each of the urban/metropolitan areas has already developed and exercised a Tactical Interoperable Communications Plan (TICP), it was determined that the minimum score would be a quarter of a Harvey Ball ("Early Implementation") instead of an empty Harvey Ball. Summary definitions of each score, included below, provide an understanding of what each urban/metropolitan area generally demonstrated in achieving a given maturity level.

Summary Definitions of Interoperable Communications Maturity Levels

Elements	Early Implementation	Intermediate Implementation	Established Implementation	Advanced Implementation
Standard Operating Procedures (SOP)	Region-wide SOPs were developed and formalized for the first time through the TICP, but have not been disseminated to all included agencies. Some elements of NIMS/ICS procedures for command and control are in place, but understanding varies among agencies and was an area of difficulty during exercise(s).	Some existing SOPs were incorporated in the TICP and steps have been taken to institute these interoperability procedures among included agencies. Formal NIMS/ICS procedures are in place, but understanding varies among agencies leading to some issues during the exercise(s).	Existing regional SOPs were reviewed and included in the TICP, and are in use by included agencies. NIMS-compliant command and control has been instituted by all agencies and disciplines in the region. Despite minor issues, all SOPs were successfully demonstrated during exercise(s).	Regional SOPs, reviewed through the TICP process, are in place and regularly used by included agencies. NIMS procedures are well established among all agencies and disciplines. All procedures were effectively utilized during exercise(s).
Usage	Interoperable communications solutions are rarely used for multi-agency communication and difficulties were encountered in achieving interoperability during exercise(s).	First responders use interoperability solutions regularly and demonstrated the ability to achieve multi-agency communications despite some challenges during exercise(s).	First responders use interoperability solutions regularly and easily. The region demonstrated successful multi-agency (which may have included state, federal, and support organizations) communications during exercise(s).	First responders regularly and seamlessly utilize interoperability solutions. The region demonstrated successful multi-agency communications during exercise(s), including state, federal and support organizations.
Governance	Decision making groups are informal, and do not yet have a strategic plan in place to guide collective communications interoperability goals and funding.	Some *formal* agreements exist and *informal* agreements are in practice among members of a decision making group; regional strategic and budget planning processes are beginning to be put in place.	Formal agreements outline the roles and responsibilities of a decision making group, which has an agreed upon strategic plan that addresses sustainable funding for collective, regional interoperable communications needs.	Decision making bodies proactively look to expand membership to ensure representation from broader public support disciplines and other levels of government, while updating their agreements and strategic plan on a regular basis.

Achieving Tactical Interoperable Communications

Communication interoperability among agencies and jurisdictions is a long-standing problem in the public safety community. Since DHS was established in 2002, it has been working expeditiously to improve interoperable communications. From FY 2003 through FY 2006, more than $2.9 billion in grant assistance has been provided to state and local agencies for equipment and other projects to improve communications interoperability. In addition, programs such as the Interoperable Communications Technical Assistance Program (ICTAP) and SAFECOM have developed tools and expedited technology standards development, testing, and evaluation to assist public safety agencies in the planning and implementation of communications systems. However, as stated by DHS Secretary Michael Chertoff in his May 8, 2006, speech to the Tactical Interoperable Communications Planning Conference,[5] public safety still has immediate communications interoperability requirements that need to be identified and rapidly met.

Progress to Date with Tactical Interoperable Communications

Through the development of the TICP, the validation exercises, and the scorecard development, all 75 urban/metropolitan areas have developed the following:

- ***Regional Communications Committee (TICP Requirement)***
- ***Regional Equipment Inventory (TICP Requirement)***
- ***Regional SOPs (TICP Requirement)***
- ***Communications Focused Exercise (Validation Exercise)***
- ***Identified communications gaps and recommendations (Scorecard & AAR)***

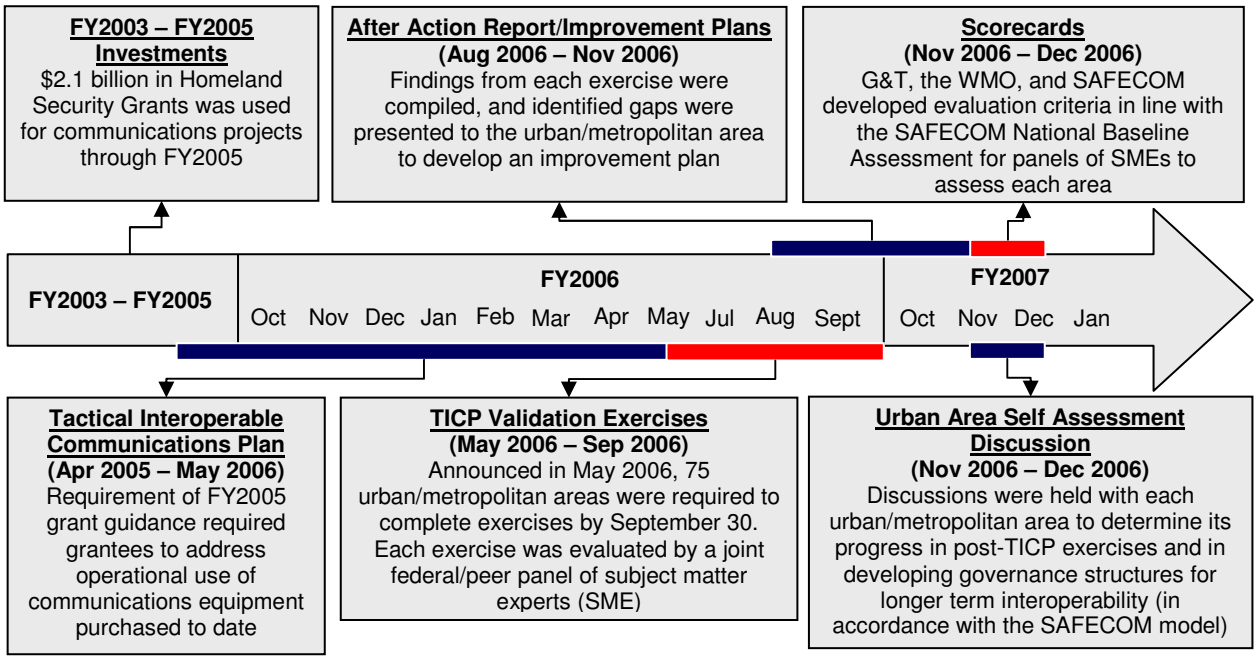
DHS understands that barriers to interoperable communications are both technical and operational. Each agency typically has its own unique legacy technologies, requirements,

[5] http://www.dhs.gov/xnews/speeches/speech_0281.shtm

operating environments, laws, and processes. Therefore, achieving interoperability requires that, in addition to addressing technology and disparate communications systems, agencies examine governance, procedures, training, exercises, and usage. Beginning with the FY 2005 grant cycle, G&T began providing urban/metropolitan areas with operational planning and exercise support to address these needs within the framework of multijurisdictional, multidiscipline incident response. The scorecard is an important milestone in this ongoing process because it marks the culmination of 2 years of planning and exercising tactical interoperable communications capabilities.

Beginning with the development of TICPs, DHS required designated urban/metropolitan areas to focus on the creation and/or validation of regional SOPs that, in some cases, represented the first time local jurisdictions had come together to align operational communications plans for incident response. During the same time period, DHS emphasized multijurisdictional and multidiscipline governance structures as demonstrated through the development of the *SAFECOM Statewide Communications Interoperability Planning Methodology* and the Urban Area Working Group requirements. Some areas had long-standing governance bodies that provided multijurisdictional and multidiscipline leadership in developing longer term communications goals and resource plans. Other areas used the TICP process as an opportunity to bring such leaders to the planning table.

Tactical Interoperable Communications Initiative Roadmap



As illustrated above, the development of a TICP in each urban/metropolitan area was followed by a validation exercise to demonstrate agencies' ability to use the TICP procedures with their existing interoperable communications assets. The results of those exercises were provided to the areas to include in improvement plans for future TICP revisions and training efforts. The scorecard summarizes the progress made to date—from the TICP development through the exercise and After Action Reports (AAR)—and provides a foundation for each area's next steps as it continues to enhance its interoperable communications capabilities.

Core Components of a TICP

The TICP for an urban/metropolitan area identifies specific problems, needs, and barriers to communications among the area's agencies and disciplines. The plan identifies potential partners and their roles and responsibilities. It inventories the area's communications resources and details how those resources would be used to provide fast, on-scene, mission-critical voice communications among all first-responder agencies. The plan must specify a level of communication appropriate for the incident and complies with the incident command system defined in the National Incident Management System (NIMS) model.

Scorecard Development Overview

To complete the scorecards, documentation from the G&T TICP process was reviewed, including the TICP, TICP Peer Review, Exercise Evalution Guide (EEG), AAR, Improvement Plan (IP), and Self Assessment Discussion (described below). Subject matter expert (SME) panels—composed of SMEs with state and local public safety operational and communications technology backgrounds in addition to representatives from G&T, SAFECOM, and the WMO—reviewed all key documents to assess Governance, SOPs, and Usage-related information. Five panels of SMEs met over a 6-week period to review all of the documentation provided for the urban/metropolitan areas. Through a facilitated process, the review panels arrived at consensus results, findings, and recommendations for each area. The resulting scorecards will be shared with and can be used by each area to support future investment justifications for improvements to regional interoperable communications.

Scorecard Documentation	
Reference Document	**Description**
TICP	Communications Plan required by all urban/metropolitan areas under FY 2005 grant guidance
TICP Peer Review	Comments of state and local peers assigned to review each TICP
Exercise Evaluation Guide	Comprehensive data from evaluation teams assigned to each TICP Validation Exercise
After Action Report	Major findings from each TICP Validation Exercise
Improvement Plan	Recommendations to areas on addressing gaps identified during the TICP Validation Exercise
Self Assessment Discussion Guide	Responses to questions addressing any tactical interoperability issues not covered by the TICP and/or exercise

Benefits and Results for Urban/Metropolitan Areas

In addition to providing a specific maturity assessment, the scorecard provides recommendations to help the urban/metropolitan area improve its overall communications capability. Technical assistance provided to each urban/metropolitan area can then be tailored to address the recommendations identified in its scorecard. Whether the area

The quickest way to achieve a meaningful improvement in interoperable communications capabilities is to focus on a strong governance structure, establish and maintain SOPs, and ensure that solutions are used regularly and effectively.

assessed received a lower or higher score, the recommendations provided, as well as future assistance goals, will serve as a foundation to ensure continued enhancements to all interoperable communications capabilities nationwide.

Element	Early Maturity Indicates the Need for…	Advanced Maturity Indicates the Need for…
Governance	▪ **Strategic plans** to identify longer-term interoperability goals and decisions	▪ Regionally based, longer-term strategies **to** coincide with **statewide planning**
SOPs	▪ **Training** on policies, procedures, and command and control	▪ Continued exercises for **NIMS proficiency** and increased involvement of state and federal agencies
Usage	▪ More **regular testing and exercise** on how to use interoperability equipment across the region	▪ **Continued exercises** on interoperability equipment with additional expanded participation

PRELIMINARY SCORECARD FINDINGS

The scorecards represent the culmination of volumes of data that have been analyzed to identify interoperable communications trends, best practices, and other insights useful in guiding both the urban/metropolitan areas and DHS programs. Although more analysis will be necessary, the following sections represent the key general trends and specific findings across the Interoperability Continuum elements.

General Scorecard Trends

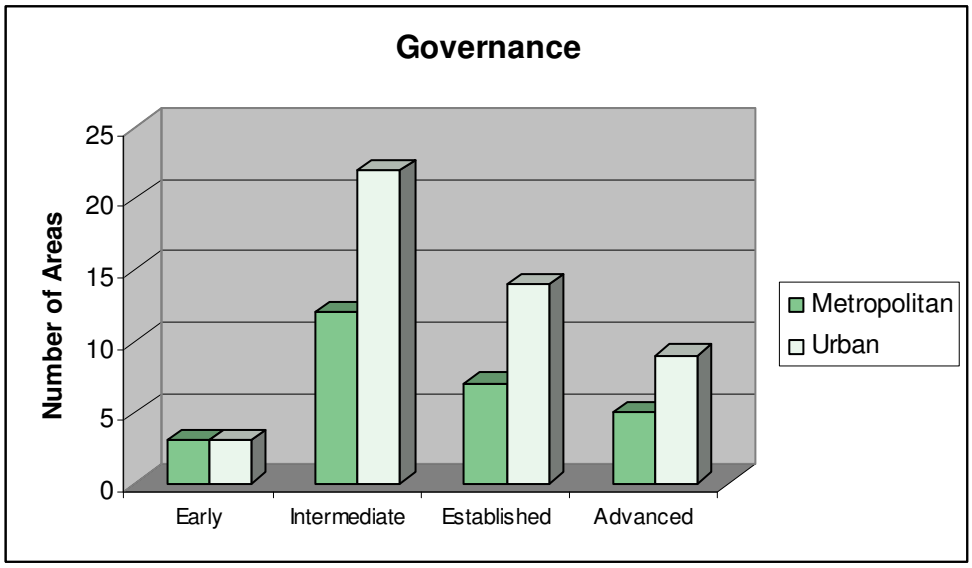
Analysis of the scorecard results provides information that is beneficial to DHS as it improves the assistance provided to state and local agencies. Two common trends across all areas include 1) areas **developing and/or using shared systems tended to demonstrate more mature** governance structures, SOPs, and usage; and 2) areas that **diversified their funding sources to address sustained interoperability tended to also have stronger** governance structures in place. General scorecard findings across all types of areas (i.e., urban and metropolitan) are presented below.

Overall Scorecard Trends

- Policies for interoperable communications are now in place in all 75 urban/metropolitan areas.
- Regular testing and exercises are needed to effectively link disparate systems to allow communications between multi-jurisdictional responders (including State and Federal) during crisis.
- The DHS Tactical Interoperable Communications Initiative has played a fundamental role in advancing interoperability in the urban/metropolitan areas.
- Cooperation among first responders in the field is strong, but formalized governance (leadership and planning) across regions has lagged. Governance will be critical in planning for larger-scale, multi-jurisdictional responses and implementation of next-generation technology.
- Areas that were part of the FY 2005 UASI Grant Program tended to demonstrate greater traction in strategic planning across the region.
- Areas that had a history of multijurisdictional cooperation because of prior incidents demonstrated stronger SOPs and Usage.
- Many of the exercises were more complicated in terms of the number and type of participating agencies; this provided more insight into the breadth of the SOPs and the depth of Usage; areas with less complicated exercises and fewer participants scored higher in Usage because the events required less coordination.
- Areas that were empowered to develop a TICP based on a "bottom-up" approach of a collaborative, regional nature scored higher in Governance than those areas in which a "top-down" state-centric approach was used.

Governance Findings

Governance measures the maturity of five basic elements critical to a successful and established governance structure: 1) Decision Making Groups, 2) Agreements, 3) Strategic Planning, 4) Interoperability Funding, and 5) Leadership.



Governance Finding 1—*Informal cooperation among multi-agency first responders often precedes a formalized and established regional governance structure:* While many urban/metropolitan areas are at the Intermediate and Established levels of maturity in their regional governance and planning efforts, the first responders and public safety organizations within the region often had been informally cooperating for years. Because of the lack of formal documentation of these relationships, "Governance" results tended to lag significantly behind "Usage" in the scorecards.

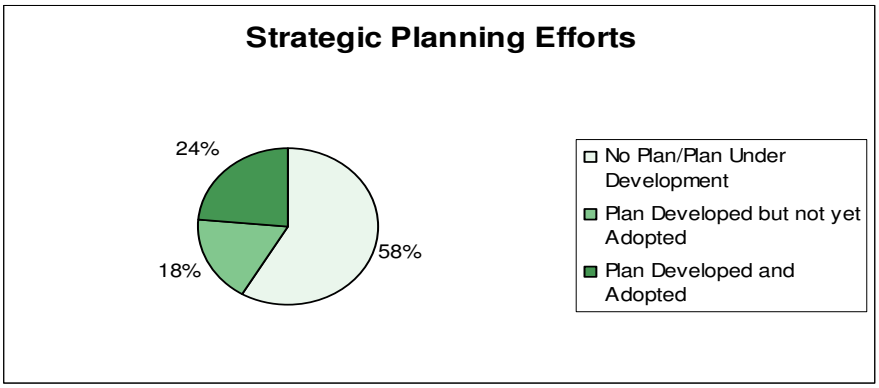
Governance—What It Means

- *A strategic plan is in place to identify longer-term interoperability goals*
- *Leadership prioritizes interoperability*
- *Various funding streams (in addition to federal grants) promote interoperability*

Governance Finding 2—*Areas with pre-existing DHS Urban Area Working Groups were more likely to have a Regional Communications Committees:* More than 75 percent of DHS-funded urban areas have developed regional communications committees to address the issue of communications interoperability. While some of these committees focus specifically on the use of federal grant funding for interoperability, others have developed a broader mandate to address other communications interoperability issues across the region (beyond the scope of federal grants). Among metropolitan areas, just under half have developed formal committees. In cases in which the states had strong governance structures, metropolitan areas tended to align their decision making bodies and strategies with the statewide efforts. As indicated by the overall governance results for both urban and metropolitan areas, a communications committee represents a critical step in regional interoperability oversight. However, the groups are not consistently supported by their jurisdictions in efforts to put formal agreements in place, develop strategic plans (including funding strategies), and influence interoperable communications policy and funding decisions.

Governance Finding 3—*Governance is a good indicator of the existence of advanced technology, more mature SOPs, and more proficient usage because it provides the foundation for communications interoperability:* In the urban/metropolitan areas that did have a formalized and established governance structure, the first responders and public safety organizations were able to demonstrate a higher level of proficiency in interoperable communications equipment usage and generally had more mature SOPs, which were accepted and practiced. This proficiency may be, in part, a result of the larger, more seamless shared

systems that more closely correlate with an established regional governance structure. This correlation is based on the fact that areas with shared systems must have developed and adopted consensus requirements, funding strategies, and longer term agreements to support mutual system use.



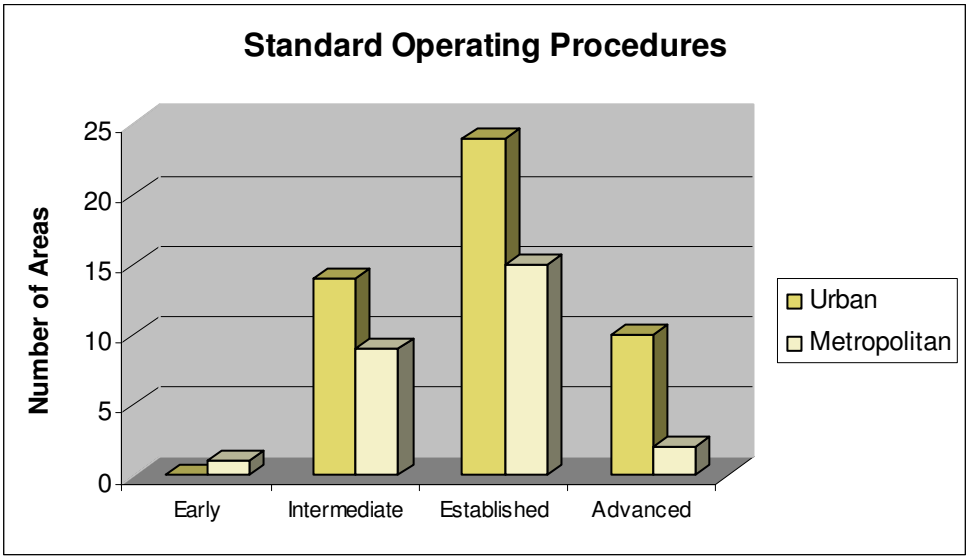
Governance Finding 4—*Few urban/metropolitan areas have completed a strategic plan for regional interoperable communications:* Beyond the operational policies of the TICP or the broad scope to the Urban Area Homeland Security Strategies, few urban/metropolitan areas have developed strategic plans specifically for regional interoperable communications (including sustainable funding plans). In cases where strategic planning processes had begun, it was often noted in the documentation that the region was developing a plan completely separate from the operational focus of the TICP.

Example of Highest and Lowest Governance Maturity for an Urban Area

Advanced Implementation 	**Early Implementation** 
• 9 of the urban/metropolitan areas received "advanced implementation" in Governance • A Communications Committee has been in place for many years and has evolved with new requirements like the TICP • A strategic interoperability plan is in place and accepted by all agencies • Funding decisions are made on a region-wide basis and have been diversified beyond Federal grants	• 3 of the urban/metropolitan areas received "early implementation" in Governance • Governance is divided between the city and county, which affects all aspects of interoperability planning • The region formed two separate working groups for the development of the TICP – One for the city, the other for the county • There is no strategic interoperability plan for the region

Standard Operating Procedures (SOP) Findings

Evaluating the level of maturity across SOPs required attention to two topics: 1) communications policies, practices, and procedures, and 2) command and control.



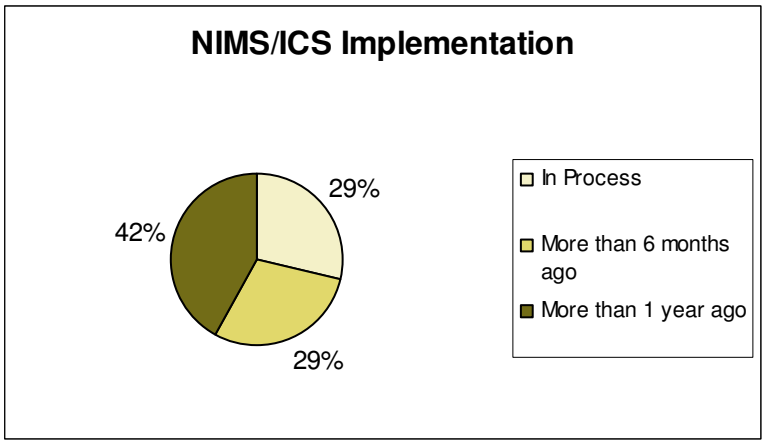
SOP Finding 1—*The TICP provided the first regionwide equipment SOP for many areas:* Through the development of the DHS-required TICP, virtually every urban/metropolitan area has instituted a consensus, regional process for the request, activation, and use of interoperable communications equipment. The most common multi-agency equipment SOPs before the TICP were primarily intended for the users of shared systems. A number of areas also cited gateway SOPs, which were developed under previous federal efforts such as the Department of Justice "25 Cities" project. Overall, relatively few state and federal responder agencies are covered by the areas' SOPs, indicating that more should be done to ensure that these groups are participating in the development and implementation of procedures.

SOP Finding 2—*The majority of areas have taken steps to disseminate their equipment SOPs throughout the region:* Regional communications equipment SOPs developed by the urban/metropolitan areas are being disseminated in a number of ways, including distribution to dispatch centers, storing applicable SOPs with gateways and radio caches, and developing training courses on SOPs for agencies included in the area. Preparation for the TICP validation exercise appeared to have been the major stimulus for SOP training, with more than half the urban/metropolitan areas participating in ICTAP "Tactical Plan Implementation Workshops" in the weeks leading to their exercises. However, in most areas, the short period of time between the completion of the TICP and the exercise deadline made it difficult to have fully circulated, new SOPs at the "line" responder level. As a result, only one third of the areas were fully successful in following their prescribed equipment SOPs.

SOPs—What It Means

- ***Policies and procedures exist to support interoperable communications during incident response***
- ***Command and control (NIMS/ICS) is used to effectively coordinate incident communications***

SOP Finding 3—*Ninety-seven percent of urban/metropolitan areas report that they are in the process of implementing NIMS; however less than half of these agencies have had these command and control policies instituted for more than 1 year:* Two out of three urban/metropolitan areas were determined to have achieved "Intermediate" maturity in the implementation of NIMS/ICS command and control procedures. This was based not only on the length of time that these SOPs had been in place in the region, but also the demonstrated level of proficiency in the TICP validation exercise. Exercise findings indicate that maturity in the use of NIMS varies by responder discipline, with fire agencies showing more aptitude in the use of these response procedures.



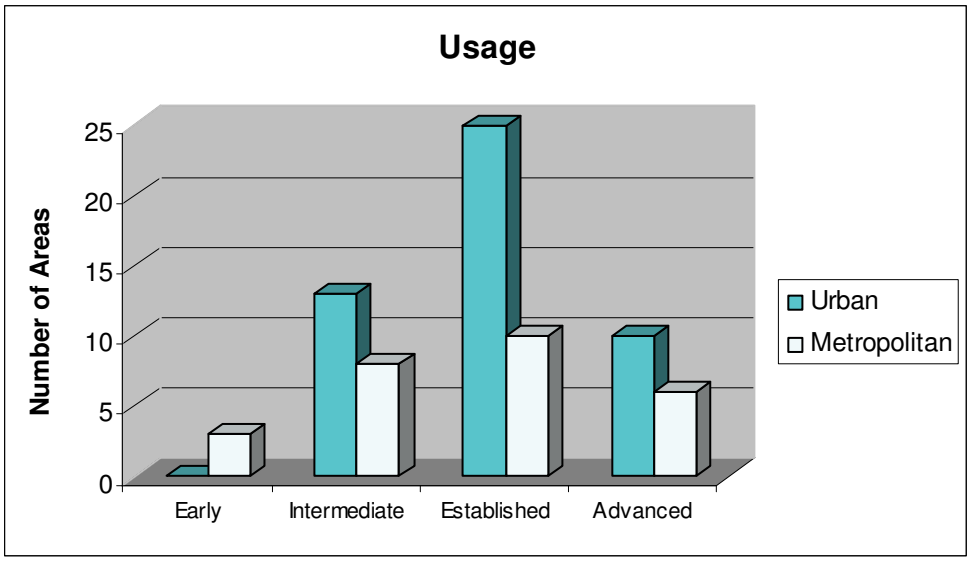
SOP Finding 4—*A NIMS Certified Communications Unit Leader Course is needed to improve proficiency in fulfilling the responsibilities of the communications unit during incident response:* As evaluated in the TICP validation exercise, areas were encouraged to implement the Communications Unit Leader (COML) position in their incident response. However, although DHS provided core competencies on the position and ICTAP developed an overview course on COML duties, formal training, and a certification program are not yet available. As a result, only 16 percent of the areas were able to implement the COML position without difficulties during the exercises. Of those areas that were successful, all but one were designated as urban areas, which could indicate the possibility that dedicated UASI funds were used to allow personnel to participate in the National Wildland Fire's discipline-specific training course for COML (the only course of its kind that is currently available to first responders).

Example of Highest and Lowest SOP Maturity for an Urban Area

Advanced Implementation 	**Intermediate Implementation** 
• 10 of the urban/metropolitan areas received "advanced implementation" in SOPs • SOPs have been in place for many years and were regionally developed • SOPs were enhanced/updated through TICP including extensive inventory • NIMS has been in place for more than 1 year • Policies were effectively followed during exercise	• All of the urban/metropolitan areas received at least "intermediate implementation" in SOPs (14 areas received "intermediate implementation") • SOPs were largely informal prior to the TICP • The TICP is a compilation of agency policies as opposed to one consensus SOP • Few steps have been taken to implement/train on new SOPs • NIMS is still being implemented and was problematic during the exercise

Usage Findings

Usage was measured by examining the familiarity with and frequency that interoperable communications equipment was used during the TICP validation exercise.



Usage Finding 1—*Sixty-eight percent of the urban/metropolitan areas effectively established regional interoperability:* While every urban/metropolitan area evaluated was able to use some level of multi-agency interoperability as part of an incident response, multijurisdictional communications necessary to support a tactical response was successfully demonstrated by more than 60 percent of the urban/metropolitan areas. Of these areas, one-half (21 percent overall) demonstrated the seamless use of all types of interoperability equipment (e.g., cache radios, gateways, shared channels and shared systems) to provide communications for not only regional responders, but also state and federal personnel. Frequently, the remaining successful areas encountered problems with at least one type of equipment, but were still able to achieve interoperability through the use of backup measures or the rapid resolution of the problem. And in other cases, areas were able to show success, but the limited scope of the TICP validation exercise prevented demonstration of seamless interoperable communications capabilities.

Usage Finding 2—*More than 80 percent of urban/metropolitan areas use shared systems and/or shared channels daily to provide communications interoperability:* Multi-agency interoperability occurs on a daily basis using talk groups on trunked systems and/or conventional shared channels in most urban/metropolitan areas. This method of interoperability was successfully used in almost every TICP validation exercise. However, within a single urban/metropolitan area, the total number of shared systems could be more than a dozen, often operating across disparate frequency bands and/or comprising different proprietary components. Problems with radio channel configuration and nomenclature were the most common issues encountered with the use of this form of interoperable communications solution.

Usage Finding 3—*The most common equipment usage problems during the TICP validation exercises related to mobile gateways:* Gateway devices were the most common method used to connect responders operating on disparate systems during the TICP validation exercise. In many areas, this was accomplished using a console patch or fixed gateway system. However, when mobile gateways were deployed during the exercises, responders often

Usage—What it Means

- *How well can response agencies use their existing interoperable equipment in multi-jurisdictional response*
- *How regularly is interoperable equipment used*

encountered problems. Evaluators reported a lack of technical familiarity with mobile gateways in a number of exercises, which is consistent with the fact that frequency of gateway use (particularly mobile gateways) varies greatly across urban/metropolitan areas.

Usage Finding 4—Urban/metropolitan areas can build on the success of their TICP validation exercise by expanding future training scenarios to focus on communications capabilities: For the majority of urban/metropolitan areas, the required TICP validation exercise was the first time that the area had participated in a test designed specifically for communications. This fact, coupled with the aggressive timeline, led some urban/metropolitan areas to minimize the scope of their exercises. While the exercises that resulted were sufficient to demonstrate communications interoperability, most were not large enough to test critical aspects of a real-world response (e.g., system loading).

Example of Highest and Lowest Usage Maturity for an Urban Area

Advanced Implementation 	**Intermediate Implementation** 
• 10 of the urban areas received "advanced implementation" in Usage • Interoperability across disparate systems is achieved on a daily basis in the region • The use of regional equipment by local, state, and federal agencies in the TICP validation exercise was described by the evaluators as "exemplary"	• All of the urban areas received at least "intermediate implementation" in Usage (13 areas received "intermediate implementation") • Exercise demonstrated that "some participants have not had sufficient practice in the use of the equipment" • Limited local involvement in exercise • State and Federal agencies were not involved in the exercise

NEXT STEPS FOR FY 2007

DHS will continue to align its programs and resources to best address the communications needs of first responders. Accomplishing this feat will require a coordinated DHS effort to provide increased resources and assistance to states and localities to empower greater communications interoperability across broader regions. Focus on five priority efforts will support this goal:

- **FY 2007 Grant Programs:** The FY 2007 Homeland Security Grant Program (HSGP) and Infrastructure Protection Program will both encourage interoperable communications as a program focus area.
- **Completed Communications Unit Leader (COML) Training:** DHS will complete and release the criteria for COML training to ensure that public safety agencies have clearer guidance on the COML role in incident response.
- **Improvement Plans/Scorecard Recommendations:** DHS ICTAP is developing, and will deliver during FY 2007, technical assistance to address the most prevalent gaps identified through the Tactical Interoperable Communications exercises.
- **Best Practices/Lessons Learned:** A compendium of all best practices and lessons learned from the TICP validation exercises will be provided to each urban/metropolitan area. Contacts for each area will be provided to encourage peer-to-peer "cross-pollination" of practices.
- **Statewide Plans:** Urban/metropolitan areas will be asked to play an active role in the development of Statewide Interoperable Communications Plans as required by December 31, 2007, in the FY 2006 HSGP.

Conclusion

The scorecard results show that urban/metropolitan areas have come a long way in developing their tactical interoperable communications capabilities. As documented in the *SAFECOM Baseline Assessment*, technology exists to permit interoperable communications, but solutions are often not available regionally and are far from seamless in many areas. Therefore, continued training and use of available technical solutions and their SOPs are critical to operational success. In areas that have demonstrated success at the tactical, command-level of communications interoperability, there is still work to be done. Multi-agency communications has been addressed within many of these jurisdictions, but regionalizing the existing communications strategies to identify longer term interoperability goals across multiple jurisdictions and levels of government still needs to be addressed.

APPENDIX A: Urban Area Scorecards

The tables included in this appendix outline the results developed for Standard Operating Procedures (SOP), Usage, and Governance for the 48 urban areas that developed and exercised TICPs. The results represent the summary assessment of each Continuum element taking into account critical "sub-elements" identified in the Interoperability Maturity Measurement Model developed as part of the *SAFECOM National Baseline Assessment*. The Baseline approach to defining the aspects of communications interoperability was leveraged to ensure consistency in the measurement models applied to various Department of Homeland Security (DHS) initiatives.

In the case of SOPs, the sub-elements include: 1) policies, practices, and procedures and 2) command and control. Usage focuses on the frequency of use and familiarity with interoperability solutions. Governance focuses on five core sub-elements including: 1) decision-making groups, 2) agreements, 3) strategic planning, 4) interoperability funding, and 5) leadership.

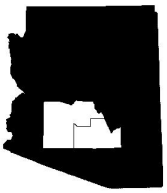
Each score can be defined as early, intermediate, established, or advanced implementation of the given element. Below, general definitions for each score are provided.

Elements	*Early Implementation*	*Intermediate Implementation*	*Established Implementation*	*Advanced Implementation*
Standard Operating Procedures (SOP)	Region-wide SOPs were developed and formalized for the first time through the TICP, but have not been disseminated to all included agencies. Some elements of NIMS/ICS procedures for command and control are in place, but understanding varies among agencies and was an area of difficulty during exercise(s).	Some existing SOPs were incorporated in the TICP and steps have been taken to institute these interoperability procedures among included agencies. Formal NIMS/ICS procedures are in place, but understanding varies among agencies leading to some issues during the exercise(s).	Existing regional SOPs were reviewed and included in the TICP, and are in use by included agencies. NIMS-compliant command and control has been instituted by all agencies and disciplines in the region. Despite minor issues, all SOPs were successfully demonstrated during exercise(s).	Regional SOPs, reviewed through the TICP process, are in place and regularly used by included agencies. NIMS procedures are well established among all agencies and disciplines. All procedures were effectively utilized during exercise(s).
Usage	Interoperable communications solutions are rarely used for multi-agency communication and difficulties were encountered in achieving interoperability during exercise(s).	First responders use interoperability solutions regularly and demonstrated the ability to achieve multi-agency communications despite some challenges during exercise(s).	First responders use interoperability solutions regularly and easily. The region demonstrated successful multi-agency (which may have included state, federal, and support organizations) communications during exercise(s).	First responders regularly and seamlessly utilize interoperability solutions. The region demonstrated successful multi-agency communications during exercise(s), including state, federal and support organizations.
Governance	Decision making groups are informal, and do not yet have a strategic plan in place to guide collective communications interoperability goals and funding.	Some *formal* agreements exist and *informal* agreements are in practice among members of a decision making group; regional strategic and budget planning processes are beginning to be put in place.	Formal agreements outline the roles and responsibilities of a decision making group, which has an agreed upon strategic plan that addresses sustainable funding for collective, regional interoperable communications needs.	Decision making bodies proactively look to expand membership to ensure representation from broader public support disciplines and other levels of government, while updating their agreements and strategic plan on a regular basis.

It should be noted that many of the urban areas have progressed in developing interoperable communications capabilities past the point at which the information for the scorecards was collected. DHS recognizes the ongoing work in each area and appreciates the participation that areas had in providing feedback and comments to their scorecards. To the extent possible, comments were incorporated into the scorecards included in this appendix.

Phoenix, AZ

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Phoenix Urban Area (UA) includes the counties of Maricopa and Pinal and the major cities of Phoenix, Mesa, Scottsdale, Glendale, Tempe, Chandler, Gilbert, and Peoria. Smaller communities included in the UA are Goodyear, Fountain Hills, Litchfield Park, Anthem, Sun Lakes, Sun City, Sun City West, Surprise, and Tolleson.

Governance: *Intermediate Implementation*

The Phoenix UA is beginning to establish communications interoperability as a priority in the area as demonstrated by the consideration for interoperability included in equipment procurement. The UA established the Interoperability Subcommittee in April 2005 to support the development of the Tactical Interoperable Communications Plan (TICP), as well as overall communications coordination. The formation of this governance group represents a positive first step in formalizing attention to communications interoperability issues. It was unclear whether a charter exists for the Interoperability Subcommittee, although the group has voting rights, which indicates a level of formality. An oversight group formed as a part of the Department of Justice (DoJ) 25 Cities project is planned to be folded into the Interoperability Subcommittee to improve coordination and efficiency of governance groups since the two groups include many of the same members. The regional agencies have some formal agreements (e.g., DoJ 25 Cities/high-level agreements between Phoenix and Mesa), but indicated that overall the partnerships were informal in nature. The continued development of documented agreements would support the formalization of these partnerships to ensure clear roles and responsibilities relating to communications interoperability issues and decisions. Phoenix officials indicated that they had developed a strategic plan that included broad representation from public support disciplines (e.g., public works, transportation, and 36 area hospitals). The strategic plan is fully developed, but has not yet been fully adopted and accepted by participating agencies. This strategy, as it gets adopted, can also support the prioritization of goals so that funding can be planned accordingly. Currently, interoperable communications funding is provided primarily through federal grants because there does not appear to be a specific regionwide plan for long-term interoperability funding. The Phoenix Interoperability Subcommittee participates in the state's communication planning group, which could serve as a basis for further developing leadership relations across local and state agencies.

Recommendations:

- Establish charters to encourage formal membership of decision-making group (including all first responder agencies)
- Continue to consolidate existing DoJ 25 Cities committee into the Urban Area Security Initiative subcommittee
- Document and formalize the necessary agreements (e.g., memoranda of understanding), including local, state, federal, and tribal partnerships, to support partnerships on regional interoperability
- Encourage full adoption and acceptance of the strategic plan by all participants and align local, state, and tribal strategic planning efforts to ensure that regional interoperability needs are met
- Encourage development of a regional interoperability funding strategy, including the identification of long-term (e.g., 3 to 5 years) funding sources (in addition to grants)

- Consider the direct involvement of a high-level official, with political and fiscal authority, to champion communications interoperability across the area
- Establish a direct line of communication for the Interoperability Subcommittee to advocate with political and fiscal leaders at local and state levels

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Standard Operating Procedures (SOP): *Established Implementation* 

The Phoenix UA incorporated existing policies and procedures (e.g., 800 megahertz [MHz] shared system SOPs and mutual aid channels SOPs as well as those developed as part of the DoJ 25 Cities Project) into the TICP, providing a solid basis for implementing the SOPs across the area. These policies and procedures have been actively disseminated since the TICP completion (e.g., distributed to all included organizations, distributed at TICP Implementation Workshop). The UA has scheduled upcoming technician and Communications Unit Leader (COML) training during which SOPs will be taught. The National Incident Management System (NIMS)/Incident Command System (ICS) has been in place for less than 1 year, which implies that the UA is still in the earlier stages of implementing NIMS/ICS policies and procedures. Despite the short period of time in which NIMS/ICS procedures have been in place, with few exceptions (e.g., unified command designation was not formally communicated), they were successfully demonstrated during the TICP validation exercise (e.g., two COMLs were identified and announced to all exercise participants).

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Phoenix shared system is used daily, and the UA tests its gateways three times each day to ensure familiarity with their use. The TICP validation exercise successfully demonstrated the use of various types of equipment (e.g., radio caches, gateways), and minor software glitches in the use of a mobile gateway were quickly resolved. The UA's use of a laminated card with a list of talk groups and radio operating instructions is commendable, and should be considered a best practice. Despite these demonstrated successes, the TICP validation exercise was limited to local, regional, and minimal state participants. Assessing the degree to which the local agencies in the UA can easily use interoperable communications equipment with state and federal agencies was therefore not possible. While the exercise met the stated requirements, the area is encouraged to build on its success by further integrating state, federal, tribal, and support agencies in future tests.

Recommendations:

- Involve private, state, federal, and tribal agencies in training and exercises
- Consider adding communications interoperability as a component in all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Phoenix UA includes 800 MHz trunked systems and several very high frequency (VHF) conventional channels. The Phoenix/Mesa system was one of the first trunked radio systems in the country to meet the Project 25 (P25) standards. To provide interoperability between 800 MHz and VHF users, console patches and several mobile and fixed gateways are available. Currently, the City of Glendale is exploring the possibility of migrating onto the area's P25 system.

Anaheim, CA
(Combined with Santa Ana, CA)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

FINThe newly combined Orange County Urban Area (UA) includes the core cities of Anaheim and Santa Ana, 32 other Orange County cities, 2 state universities and the County of Orange.

Governance: *Advanced Implementation*

The Tactical Interoperable Communications Plan (TICP) was created under the authority of the Orange County Operational Area; previously established committees (e.g., 800 megahertz [MHz] Governance Committee, 800 MHz Technical Liaison Committee, Orange County Chiefs of Police and Sheriff's Association, Orange County Fire Chief's Association) are responsible for key decisions and recommendations relative to policy, training, exercises, compliance, establishment of special committees, and operational issues within the UA. The governance structure developed by the Orange County UA can serve as a model for other jurisdictions based on its breadth of local and state participation, frequency of meetings and reviews, and ability to address near-term needs and long-term interoperability goals. As documented in Section 2 of its TICP, there is a clear authority flow for interoperable communications decisions, which is inclusive of all local first responder organizations. The UA has proactively included multiple state and federal agencies in its interoperability solution through its Countywide Coordinated Communication System; however, the extent of the governance group's formal interaction with federal agencies is not stated. Additionally, the Orange County UA has a regional interoperability strategic plan in place that has been accepted by all participating agencies, is reviewed annually, and can address funding if future interoperability enhancements are required.

Recommendations:

- Continue to seek formalized participation from and coordination with state and federal agencies in governance bodies
- Continue to review and regularly update agreements (e.g., memoranda of understanding) to ensure appropriate agency participation
- Continue to identify long-term (e.g., 3 to 5 years) funding sources to support interoperable communications

Standard Operating Procedures (SOP): *Established Implementation*

The policies for use of the Orange County shared system are long established and were effectively documented in Section 3 of the TICP. SOPs have been disseminated to all included agencies and dispatch centers, and distributed through the TICP Implementation Workshop. The use of these system SOPs was well demonstrated during the TICP validation exercise. The exercise did show the need for further development of gateway SOPs. The UA indicated that it has been in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS) for less than one year, which implies that the UA is in the earlier stages of implementing NIMS/ICS policies and procedures. During the TICP validation exercise, participants demonstrated familiarity with NIMS/ICS processes (e.g.,

established and clearly announced unified command, staging area designated and entry talk group announced), but have not yet established full proficiency in these processes (e.g., no ICS Form 205 was created, plain language not used). However, as stated in the post-exercise Improvement Plan, the UA is actively pursuing improvements in the Communications Unit Leader functions pending further development of the criteria for this position.

Recommendations:
- Further develop SOPs for the use of gateways
- Continue regularly exercising SOPs that test various scenario-based command and control procedures
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Orange County UA regularly conducts multi-agency responses using its shared system. The TICP validation exercise participants were able to successfully establish interoperable communications (e.g., shared systems were used effectively, dispatch maintained fully interoperable communications with all first responders). Despite demonstrated successes and although the TICP validation exercise met set standards, broader state and federal agencies were not widely included. Assessing the degree to which the local agencies in the UA can easily use interoperable communications equipment with state and federal agencies was therefore limited. The UA is encouraged to build on its success by further integrating state, federal, and support agencies in future tests. Further demonstrating fluency and familiarity with interoperable communications solutions connecting local agencies with state and federal agencies would follow through on the recommendation in the post-exercise Improvement Plan that states that "Now that excellence with intra-county communications has been demonstrated, exercise and evaluate communications links with agencies from state, federal, and outlying jurisdictions on other radio systems."

Recommendations:
- Consider expanding exercises to integrate state and federal entities
- Continue to expand and/or document additional methods to interoperate with state and federal agencies in the UA (e.g., Naval Weapons Station)
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Anaheim and Santa Ana, California public safety communications are supported by the Orange County's 800 MHz mixed-mode trunked radio system. All public safety agencies in the Orange County UA have talk groups on this system, which includes 81 channels with 400 talk groups and 16,000 radios. Given that the current radio system in Orange County provides for the highest possible level of interoperability (shared system), the next step would be to upgrade to a countywide Project 25 system.

Long Beach, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The Los Angeles (LA)/Long Beach (LB) Urban Area (UA) is a combination of two formerly separate areas—the LA UA and LB UA. The newly combined UA includes the cities of Bellflower, Beverly Hills, Carson, Compton, Culver City, Glendale, Hawaiian Gardens, Hawthorne, Inglewood, Lakewood, Long Beach, Los Angeles, Monterey Park, Paramount, Pasadena, San Fernando, Santa Monica, Signal Hill, South Pasadena, Torrance, Vernon, and West Hollywood, and portions of incorporated and unincorporated Los Angeles County.

Governance: *Established Implementation*

Governance organizations for regional communications in the LA/LB UA have supported the implementation of regional communications interoperability equipment and infrastructure in recent years. The LA/LB UA Working Group developed the Tactical Interoperable Communications Plan (TICP) as one of its first combined efforts. The LA/LB UA has demonstrated leadership through a history of successful cooperation in building and funding shared communications systems and interoperability solutions across the area. Published and active agreements in the LA/LB UA effectively facilitate communications interoperability among all regional first responder agencies. Although the UA is not yet, in its entirety, involved in strategic planning for communications interoperability goals, the UA leadership is actively planning new solutions (e.g., Project 25 [P25] system) that will expand the interoperable communications capabilities to other parts of the area. Despite the good cooperation in the area, jurisdictions perform budgeting individually (with the exception of grants), and there is no specific regionwide plan for long-term communications interoperability funding. There is also no single, well-established governance body or decision-making group that actively seeks out input from all the LA/LB UA public safety organizations.

Recommendations:

- Work to form one governance body that has formal authority over the newly formed combined UA, which should include input beyond county and local first responder organizations. This governance body should include state agencies, such as California Department of Transportation, California Department of Forestry and Fire Protection, and the California Highway Patrol (CHP), other transportation agencies, utilities, and appropriate federal agencies
- Continue to document and adopt a regional strategic planning process beyond the operational focus of the TICP
- Continue to establish a regional interoperability funding strategy to include long-term (e.g., 3 to 5 years) funding sources

Standard Operating Procedures (SOP): *Advanced Implementation*

The LA/LB UA TICP published and formalized existing policies and procedures for shared channels and mutual aid that have been in place for a number of years, thereby providing a solid basis for implementing the SOPs across the area. Los Angeles ratified its TICP with signatures from all the local municipal (city and county) jurisdictions, and distributed the SOPs to all included agencies to demonstrate formal support for

their use. Through the TICP validation exercise, the LA/LB UA has demonstrated successful incorporation of the SOPs, which are compliant with the National Incident Management System (NIMS), into first responder practices and procedures. For example, during the TICP validation exercise, the incident command structure was established and properly communicated to all participants. Additional steps, such as including a procedure in the TICP for the proper designation and announcement of the Communications Unit Leader during an incident, would support the continued implementation of NIMS/Incident Command System (ICS).

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

The LA/LB UA first responders regularly and successfully use multiple types of interoperability equipment (e.g., shared channels, shared systems). While gateways are only needed on a monthly basis for real-world use, LA/LB officials indicated that they are tested two times a week to ensure familiarity with their use. The area showed proficiency in the use of all applicable equipment during their TICP exercise. For example, shared marine channels and the Long Beach shared system were effectively used during the TICP validation exercise and seven gateways were tested to show the extent of their capabilities. Additionally, state and federal agencies were included in the exercise to demonstrate the breadth of user familiarity on interoperability equipment across all levels of government.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The LA/LB UA is served by a number of radio systems operating in various public safety frequency bands. Systems available include a countywide 800 megahertz system, an ultra high frequency (UHF) system operating in the public safety UHF and UHF-Television bands, a very high frequency (VHF) high-band system, and a VHF low-band system.

The cities of Burbank, Culver City, and Glendale share a UHF, digital, Motorola SmartZone™ system, known as the Interagency Communications Interoperability System. The City of Long Beach also operates shared VHF and UHF systems for various departments within the city, including the Police, Fire, Public Works, and Health and Human Services departments. In addition to these shared systems, interoperability is available through the use of shared channels, radio caches, and gateways. The fixed gateway is located and managed at the Sheriff's Communications Center (SCC) in Los Angeles. The CHP and the City of Long Beach have console patching capabilities. Additionally, there are nine mobile gateways available in the area. The LA Regional Tactical Communications System (LARTCS), located at and managed by the SCC, is the major fixed gateway serving the area. LARTCS plans to design and procure an expanded multiband mutual aid communications system that provides coverage throughout Los Angeles County, including the surrounding national forests.

The Regional Interoperability Steering Committee is planning the construction of a shared P25 UHF trunked radio system covering the UA. The implementation of a shared UHF P25-compliant system would allow the use of multiple vendors.

Los Angeles, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The Los Angeles (LA)/Long Beach (LB) Urban Area (UA) is a combination of two formerly separate areas—the LA UA and LB UA. The newly combined UA includes the cities of Bellflower, Beverly Hills, Carson, Compton, Culver City, Glendale, Hawaiian Gardens, Hawthorne, Inglewood, Lakewood, Long Beach, Los Angeles, Monterey Park, Paramount, Pasadena, San Fernando, Santa Monica, Signal Hill, South Pasadena, Torrance, Vernon, and West Hollywood, and portions of incorporated and unincorporated Los Angeles County.

Governance: *Established Implementation*

Governance organizations for regional communications in the LA/LB UA have supported the implementation of regional communications interoperability equipment and infrastructure in recent years. The LA/LB UA Working Group developed the Tactical Interoperable Communications Plan (TICP) as one of its first combined efforts. The LA/LB UA has demonstrated leadership through a history of successful cooperation in building and funding shared communications systems and interoperability solutions across the area. Published and active agreements in the LA/LB UA effectively facilitate communications interoperability among all regional first responder agencies. Although the UA is not yet, in its entirety, involved in strategic planning for communications interoperability goals, the UA leadership is actively planning new solutions (e.g., Project 25 [P25] system) that will expand the interoperable communications capabilities to other parts of the area. Despite the good cooperation in the area, jurisdictions perform budgeting individually (with the exception of grants), and there is no specific regionwide plan for long-term communications interoperability funding. There is also no single, well-established governance body or decision-making group that actively seeks out input from all the LA/LB UA public safety organizations.

Recommendations:

- Work to form one governance body that has formal authority over the newly formed combined UA, which should include input beyond county and local first responder organizations. This governance body should include state agencies, such as California Department of Transportation, California Department of Forestry and Fire Protection, and the California Highway Patrol (CHP), other transportation agencies, utilities, and appropriate federal agencies
- Continue to document and adopt a regional strategic planning process beyond the operational focus of the TICP
- Continue to establish a regional interoperability funding strategy to include long-term (e.g., 3 to 5 years) funding sources

Standard Operating Procedures (SOP): *Advanced Implementation*

The LA/LB UA TICP published and formalized existing policies and procedures for shared channels and mutual aid that have been in place for a number of years, thereby providing a solid basis for implementing the SOPs across the area. Los Angeles ratified its TICP with signatures from all the local municipal (city and county) jurisdictions, and distributed the SOPs to all included agencies to demonstrate formal support for

their use. Through the TICP validation exercise, the LA/LB UA has demonstrated successful incorporation of the SOPs, which are compliant with the National Incident Management System (NIMS), into first responder practices and procedures. For example, during the TICP validation exercise, the incident command structure was established and properly communicated to all participants. Additional steps, such as including a procedure in the TICP for the proper designation and announcement of the Communications Unit Leader during an incident, would support the continued implementation of NIMS/Incident Command System (ICS).

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

The LA/LB UA first responders regularly and successfully use multiple types of interoperability equipment (e.g., shared channels, shared systems). While gateways are only needed on a monthly basis for real-world use, LA/LB officials indicated that they are tested two times a week to ensure familiarity with their use. The area showed proficiency in the use of all applicable equipment during their TICP exercise. For example, shared marine channels and the Long Beach shared system were effectively used during the TICP validation exercise and seven gateways were tested to show the extent of their capabilities. Additionally, state and federal agencies were included in the exercise to demonstrate the breadth of user familiarity on interoperability equipment across all levels of government.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The LA/LB UA is served by a number of radio systems operating in various public safety frequency bands. Systems available include a countywide 800 megahertz system, an ultra high frequency (UHF) system operating in the public safety UHF and UHF-Television bands, a very high frequency (VHF) high-band system, and a VHF low-band system.

The cities of Burbank, Culver City, and Glendale share a UHF, digital, Motorola SmartZone™ system, known as the Interagency Communications Interoperability System. The City of Long Beach also operates shared VHF and UHF systems for various departments within the city, including the Police, Fire, Public Works, and Health and Human Services departments. In addition to these shared systems, interoperability is available through the use of shared channels, radio caches, and gateways. The fixed gateway is located and managed at the Sheriff's Communications Center (SCC) in Los Angeles. The CHP and the City of Long Beach have console patching capabilities. Additionally, there are nine mobile gateways available in the area. The LA Regional Tactical Communications System (LARTCS), located at and managed by the SCC, is the major fixed gateway serving the area. LARTCS plans to design and procure an expanded multiband mutual aid communications system that provides coverage throughout Los Angeles County, including the surrounding national forests.

The Regional Interoperability Steering Committee is planning the construction of a shared P25 UHF trunked radio system covering the UA. The implementation of a shared UHF P25-compliant system would allow the use of multiple vendors.

Oakland, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The Oakland Urban Area (UA) includes the City of Oakland, Alameda County, and Contra Costa County.

Governance: *Intermediate Implementation*

The Interoperable Communications Project Group (ICPG) began meeting in 2003 and oversaw the Tactical Interoperable Communications Plan (TICP) development. As identified in the documentation, it does not appear that the group is formalized, and as noted by TICP peer reviewers, the UA should further "explain governing responsibilities and relation to the Urban Area Working Group (UAWG)" to clarify how the organizations work together. The Oakland area has completed strategic planning efforts; however, a formal plan has not yet been adopted by the included agencies. This strategy, as it gets adopted, can also support the prioritization of goals so that funding can be planned accordingly. With most project funding supported through annual federal grants, long-term funding was indicated by the UA as a concern. With respect to the federal grants, it does appear that the agencies give consideration to regional interoperable communications while procuring equipment. Although the local leadership is strong (demonstrated by involvement from local mayors and other executives), there are regional leadership differences (across the multiple jurisdictions) that may slow progress toward interoperability across the UA as a whole.

Recommendations:

- Identify and document the roles, responsibilities, and relationships within the decision-making group (e.g., ICPG membership, relationship to UAWG)
- Continue to develop, document, and formalize agreements (e.g., signed memoranda of understanding [MOU] with defined roles and responsibilities) among all participating agencies to support partnerships on regional interoperability
- Reference all applicable agreements (e.g., MOUs, intergovernmental agreements) in the TICP and store them in an accessible format
- Continue to establish a regular review process to ensure that agreements remain current and relevant
- Adopt and implement the regional strategic plan
- Continue to align regional and state strategic planning efforts to ensure that regional interoperability needs are met
- Continue to develop and implement a regional approach to budgeting and procuring regional communications interoperability assets
- Continue to develop and implement a regional approach to long-term (e.g., 3 to 5 years) sustainable funding that is consistent with the strategic plan
- Encourage broader involvement by senior government leadership on interoperability funding and procurement plans

Standard Operating Procedures (SOP): *Advanced Implementation*

The Oakland TICP is based on existing policies and procedures. Since these SOPs were already well established and used frequently, the public safety agencies in the UA were well positioned to adopt the TICP.

The UA has taken a number of steps to disseminate and train on the SOPs among the participating organizations. According to the Exercise Evaluation Guide, despite a minor issue with naming conventions on shared channels, the UA was largely successful in the use of its documented procedures. National Incident Management System (NIMS)/Incident Command System (ICS) has been used throughout the UA for more than a year, with countywide training ongoing. This is consistent with a state mandate for NIMS compliance. The exercise evaluation indicated that "members of the Unified Command staff worked together very effectively." The Communications Unit Leader was likewise praised for decisions in allocating communications resources during the exercise.

Recommendations:

- Consider scheduling a regular review and update process of developed policies and procedures
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

The UA frequently uses its available means of interoperable communications (e.g., radio cache, gateways, shared channels, and shared systems). Additionally, officials in the area report proficiency during real-world events (e.g., football games) where radio caches and gateways are used to provide communications to local, state, and federal agencies. During the TICP validation exercise, the participants were able to establish interoperable communications despite some minimal technical difficulty (e.g., no roll call taken for gateways and shared systems). The exercise was noteworthy for its complexity and the test it provided among local, state, and federal agencies in the area.

Recommendation:

- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The City of Oakland has two ACU-1000 gateways, and the County of Alameda has four deployable Infinimux G4 gateway devices. Currently, interoperability is achieved by using the gateways, shared proprietary radio systems, and National Public Safety Planning Advisory Committee (NPSPAC) channels for mutual aid. The surrounding County of Alameda has a Motorola, 800 megahertz, trunked, communications system. The adjacent County of Contra Costa and several other adjacent localities field conventional very high frequency and ultra high frequency communications systems.

The UA is planning for a new communications system that will be a shared, Project 25 (P25) standard radio system and encompass the two-county area to create a regional communications system. Regional agencies will become part of the shared P25 radio system and will be given subscriber units to use NPSPAC frequencies for mutual aid. In addition, a networked gateway system will be installed to assure operable communications during the migration of the new P25 system; allowing a gateway to outside agencies that are not P25 capable.

Sacramento, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Sacramento Urban Area (UA) includes Sacramento County and the cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, Rocklin and Roseville (both located in Placer County), Sacramento, and West Sacramento (both located in Yolo County).

Governance: *Established Implementation*

The Sacramento UA has two committees in place that coordinate interoperability issues; the Urban Area Security Initiative (UASI) communications group is focused on governance, and the Sacramento Regional Radio Communications System (SRRCS) committee is a technical group focused on the development and oversight of the area's shared system. SRRCS has been in place since 1992, and the group meets on a weekly basis. Formalized contracts and memoranda of understanding (MOU) are in place for participating local agencies, as well as selected state and federal agencies (e.g., Federal Bureau of Investigation, U.S. Marshals Service, U.S. Coast Guard). Although a strategic planning process is in place, it is not clear whether this long-standing process has developed a documented, formal, regional strategic plan. This strategic planning process could provide a method to improve cooperation with California Highway Patrol (CHP), California Statewide Interoperability Executive Committee, and other public safety organizations. Local political leaders have provided policy and fiscal support, and funding is being provided based on regional needs through grants as well as user fees.

Recommendations:

- Encourage additional regional, state, and federal agency participation (e.g., CHP and California Division of Forestry) to participate in the decision-making group
- Continue to formalize agreements (e.g., MOUs) with needed participants, including additional state and federal organizations
- Continue to document and implement the regional strategic plan (beyond the operational focus of the Tactical Interoperable Communications Plan [TICP]), with participant approval, adoption, and acceptance
- Continue to align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Incorporate the regional interoperability funding strategy into the strategic plan, and consider funding models that can leverage local, regional, and statewide strategic planning efforts

Standard Operating Procedures (SOP): *Established Implementation*

The Sacramento UA has had formal, region wide SOPs through its SRRCS structure, which has been in place since 1996. The TICP is based on these previously developed policies and has been distributed to all included agencies. Additional steps, such as storing applicable SOPs with radio caches and gateways, would support the continued dissemination and implementation of these policies. Sacramento officials indicated that there has been success in the regular use of these policies and procedures. However, officials also indicated that interoperability training had been difficult to implement, and a more regular communications

training program was desired. The Sacramento UA is in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS), and training was ongoing. As noted in the After Action Report, while some gaps were identified in overall command and control (e.g., Incident Commander did not initially incorporate the fire command within the unified command structure and did not efficiently delegate responsibilities to appropriate responders), the certified Communications Unit Leader showed proficiency during the TICP validation exercise.

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Sacramento UA primarily uses its 800 megahertz (MHz) shared system, as well as monthly use of the Folsom gateway and periodic use of radio caches (primarily for planned events). In the TICP validation exercise, the UA successfully used state mutual aid channels and tied these channels to the SRRCS shared system using a gateway device. The Sacramento UA involved all first responders in the exercise and should build up this success by further incorporating state, federal, and support agencies in its TICP and future exercises. The addition of these outside agencies would facilitate improved cooperation and ensure that implementing interoperability beyond the use of the SRRCS is regularly practiced. The Sacramento UA seamlessly used its shared system, as recently demonstrated when public safety agencies responded to the wounding of an officer who was conducting a traffic stop operation in a remote area.

Recommendations:

- Continue to regularly test and exercise the deployment of regional communications interoperability resources to improve proficiency and familiarity of use
- Broaden state and federal agency involvement in training and exercises to facilitate interagency cooperation
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

In 1995, the Sacramento UA implemented an 800 MHz trunked radio system to serve most of the local government and public safety jurisdictions. This radio communications system is known as the SRRCS. It consists of 2 Motorola SmartNet™ simulcast systems with a total of 49 frequency pairs. There are six fixed sites throughout Sacramento County.

The Sacramento UA is working toward upgrading this system to become fully compliant with Project 25 standards. Currently, however, the SRRCS is being upgraded to a Motorola SmartZone™ 4.1, funded by the UASI grant program.

San Diego, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The San Diego Urban Area (UA) includes the City of San Diego and counties of San Diego and Imperial.

Governance: *Advanced Implementation*

The Tactical Interoperable Communications Plan (TICP) Peer Review stated that "[t]his was one of the most thorough, well planned TICPs reviewed and reflects an earnest effort by many of the people who have a vested interest and can be viewed as a model." The San Diego UA established strategic communications interoperability planning as a priority over a decade ago. This long-term success and collaboration in the UA points to significant support from executive leadership in the UA. While the TICP seems well-established, organizing all agreements (e.g., memoranda of understanding [MOU]) in an accessible format would support continued coordination among participating agencies. The established partnership between San Diego law enforcement and the Department of Justice (DoJ) Integrated Wireless Network (IWN) is commendable, and should be considered a best practice. The San Diego UA should continue to reach out to organizations (e.g., utilities) not specifically involved in the decision-making group. The San Diego UA has budget plans for system upgrades, as well as operations and maintenance, but it is unclear how many years out funding is allocated.

Recommendations:

- Recommend working toward the establishment of a regional MOU for interoperability (if a regional MOU is not already in place), and reference all applicable agreements in the TICP and store them in an accessible format
- Continue to identify long-term (e.g., 3 to 5 years) communications interoperability funding sources

Standard Operating Procedures (SOP): *Advanced Implementation*

San Diego officials indicated that 90 percent of the TICP was based on previous policies, and these SOPs are well documented in their TICP. Exercise evaluators observed responder operation of communications systems, which demonstrated the effective use of policies, practices, and procedures. Evaluators also noted that these SOPs "within the San Diego UA are effective in providing for tactical interoperable communications among local responders" during real-world incidents. Additional steps, such as disseminating, formalizing, and training on these tactical policies, would support the widespread and consistent use of the SOPs . The National Incident Management System (NIMS)/ Incident Command System (ICS) has been implemented for more than 1 year, and the certified Communications Unit Leader showed proficiency during the TICP validation exercise.

Recommendations:

- Continue to conduct training so that SOPs remain entrenched in operations
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Advanced Implementation* 

The San Diego UA uses its shared system on a daily basis for multi-agency, multidiscipline responses. Use of this shared system provides a means of interoperability to most users in the UA. Repeated multijurisdictional responses to wild land fires have led to ongoing improvements in the usage of interoperable communications equipment. The UA showed proficiency in the use of radio caches and the shared system to provide seamless communications during the TICP validation exercise. In addition, exercise participants were able to demonstrate familiarity and effective use of gateways and shared channels. The San Diego UA has established a partnership with the University of California, San Diego to prototype a regionwide, public safety wireless data network - High Performance Wireless Research and Education, which is commendable and should be considered a best practice.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The San Diego UA's Regional Communications System is a large 800 megahertz (MHz), trunked system that spans two counties. It supports the majority of the area's users. The City of San Diego also operates an 800 MHz, trunked system. Both of these systems support shared talk groups for mutual aid with large contingents of federal users operating in the very high frequency band. There are also mobile gateways and console patches available for interoperability among federal and local first responders.

Both the city and county of San Diego are upgrading their respective proprietary, trunked systems to the same version for improved interoperability. Both jurisdictions are interested in future migration to the Project 25 standard, but the costs to do so have been prohibitive thus far. The area is also working toward installing a wide-area digital, microwave backbone to provide a dedicated, high-speed link for data sharing and collaboration. Public safety administrators, elected officials, and the San Diego Association of Governments, in collaboration with San Diego State University, have been actively working to develop a regional technology framework. The expected governance agreement will effectively establish a Regional Authority whose goals will include developing long-term priorities for the funding of technology projects and a "Clearinghouse" process for the review of technology grant requests to ensure that the requests are in the best long-term interests of regional public safety and that they are coordinated to avoid duplicate grant requests.

San Francisco, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The San Francisco Urban Area (UA) includes the City of San Francisco, San Francisco County, and mutual aid partners (Marin and San Mateo counties).

Governance: *Intermediate Implementation*

The San Francisco Urban Area Security Initiative (UASI) has an ad-hoc Communications Advisory subcommittee, established in 2006, that includes some local, state, and federal agencies (e.g., public health, state police, U.S. Coast Guard [USCG]). From the documentation, the decision-making group responsible for the regional interoperable communications is not clearly designated (e.g., Communications Advisory Committee, Technical Working Group, Communications Working Group). There are some formal agreements (e.g., Golden Gate Incident Action Plan) and a mix of formal and informal partnerships among agencies in the UA. The continued development of documented agreements would support the formalization of these partnerships to ensure clear roles and responsibilities relating to communications interoperability issues and decisions. The area is beginning to develop a strategic plan for regional interoperable communications that includes additional agencies in the area. This strategy, as it gets adopted, can also support the prioritization of goals so that funding can be planned accordingly. Through federal grant funds, the organizations within the San Francisco UA give some consideration to interoperable communications when procuring equipment and are working to develop a diversified and sustainable funding plan. The level of support from UA leadership for regionwide interoperability is growing, but continues to face the challenge of focusing on day-to-day, agency-specific communications needs.

Recommendations:

- Clarify the roles, responsibilities, and relationships of the governance groups (e.g., San Francisco UASI, Bay Area Super UASI Group, Communications Advisory Committee, Communications Working Group, Technical Working Group) identified in the Tactical Interoperable Communications Plan (TICP)
- Establish Communications Working Group through a formal charter, include all local, public support, state, and federal agencies (e.g., USCG) and document roles and responsibilities as part of the group
- Continue to develop, document, and formalize agreements (e.g., signed memoranda of understanding [MOU] with defined roles and responsibilities) among all participating agencies relating to regional interoperability
- Reference all applicable agreements (e.g., MOUs, intergovernmental agreements) in the TICP, store them in an accessible format and establish a regular review process so they remain current and relevant
- Continue to develop, document, and implement a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance, that takes into account a long-term (e.g., 3 to 5 years) funding strategy
- Continue to align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Begin to broaden and champion a governance structure that will support regional communications interoperability, and involve senior regional government leadership on long-term funding plans

Standard Operating Procedures (SOP): *Intermediate Implementation*

The San Francisco UA TICP represents the first formal interoperable communications regional SOPs; however, the TICP takes into account various set of law enforcement SOPs and other informal procedures for interoperability as reported by area officials. Participation in the development of the plan was originally limited in the public safety agencies involved, and the area has acknowledged that, although they have helpd workshops, they need additional support to better disseminate the TICP to area agencies (e.g., distribute to all included agencies and dispatch centers).

During the TICP validation exercise, participants experienced procedural difficulties (e.g., limited use of shared channels, gateway activation/deactivation problems, incorrect channel assignment) that highlight the need for increased training on the procedures for interoperability. Regarding command and control SOPs, the San Francisco UA began the process of implementing National Incident Management System (NIMS)/Incident Command System (ICS) less than 1 year ago, which implies that the UA is still in the earlier stages of implementing NIMS/ICS policies and procedures. During the exercise, participants demonstrated familiarity with these processes; however, they encountered some problems related to command and control (e.g., ICS Form 205 was not distributed; there was no clear delineation of unified command roles and responsibilities, incident command was established but not announced until a later time). The UA has prioritized the continued development and exercises of command and control SOPs, which shows their dedication to continued strengthening of their interoperable capabilities.

Recommendations:

- Develop regional communications interoperability SOPs (beyond the TICP) with participation by first responder agencies from across all applicable jurisdictions and disciplines
- Distribute and put SOPs into practice through regular training, exercises, and usage (e.g., to address gateway activation issue)
- Dispatchers should conduct drills on enabling, establishing, and disabling all methods for achieving interoperable communications
- Consider scheduling a regular review and update process of developed policies and procedures
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance
- Evaluate compliance with NIMS/ICS during all future exercises

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Usage: *Established Implementation* 

The San Francisco UA frequently uses its available means of interoperable communications (e.g., shared channels, gateways, and shared systems). During the TICP validation exercise, participants demonstrated familiarity with the interoperable communications equipment. However, there were some difficulties activating console patches. Despite the UA's demonstrated successes, the TICP validation exercise was limited to local, regional, and minimal state participants. Assessing the degree to which the local agencies in the UA can easily use interoperable communications equipment with state and federal agencies was therefore not possible. While the exercise met the stated requirements, the area is encouraged to build on its success by further integrating state, federal, tribal, and support agencies in future tests.

Recommendations:

- Regularly test and exercise deployment of and procedures for regional interoperability resources (e.g., activation of console patches) to improve proficiency
- Consider including additional state and federal agencies (e.g., Federal Bureau of Investigation, USCG) in future exercises and day-to-day use
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The UA uses an 800 megahertz trunked system that supports a majority of users in the area. Several shared channels are available as well, especially in the very high frequency band. The UA has a limited number of radio caches and gateways available for use. San Francisco is working with other UASI sites in the Bay Area to upgrade and integrate their respective microwave backbones. The connectivity will allow the different sites to integrate their systems for improved interoperability in the UA.

San Jose, CA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Established Implementation*

The San Jose Urban Area (UA) includes the following cities and unincorporated areas: Campbell, Cupertino, Gilroy, Los Altos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, and Saratoga.

Governance: *Advanced Implementation*

The San Jose UA Security Initiative (UASI) Advisory Working Group works in conjunction with the Silicon Valley Regional Interoperability Project (SVRIP), which developed the Tactical Interoperable Communications Plan (TICP). The SVRIP includes local, state, and federal agencies (e.g., Pacific Gas and Electric, San Jose Mayor's Office, California Highway Patrol, and Bureau of Alcohol, Tobacco, Firearms, and Explosives) and actively recruits new members. The area has formal agreements and partnerships among all public safety organizations in the area. The San Jose UASI Advisory Working Group's Executive Steering Committee annually reviews its regional strategic plan for interoperable communications, and is working to create an expanded regional emergency communications plan that will include San Jose, Oakland, and San Francisco. In addition to federal funds, the San Jose UA uses local resources for lifecycle costs (e.g., communications equipment, operations and maintenance). Organizations within the area develop budgets and procure equipment according to the regional strategic goals. The senior level-leaders in the area serve as interoperability advocates and act to ensure continued political and fiscal support for the area.

Recommendations:

- Continue to align local, regional, and state strategic planning efforts to ensure that regional interoperability needs are met
- Continue to development and implement a regional approach to long-term (e.g., 3 to 5 years) sustainable funding that is consistent with the strategic plan

Standard Operating Procedures (SOP): *Advanced Implementation*

The San Jose UA incorporated existing policies and procedures into the TICP (e.g., Santa Clara County Fire Mutual Aid, Bay Area Mutual Aid Channels policies). The area has taken steps to disseminate these policies and procedures to all participating organizations and also has plans to update the SOPs as pilot technologies (e.g., Voice over Internet Protocol [VoIP]) are implemented. The San Jose UA began implementing National Incident Management System (NIMS)/Incident Command System (ICS) more than 1 year ago, and policies include fire, law enforcement, emergency medical services, and public works organizations in the training. During the TICP validation exercise, participants demonstrated familiarity with NIMS/ICS, but experienced minimal difficulties (e.g., Unified Command established but not announced, Communications Unit Leader roles and responsibilities not clearly designated). As a best practice, the area should be commended for the development of the TICP training video and the formalized Action Plans for continued SOP training.

Recommendations:

- Ensure that TICP peer review recommendations are incorporated into the TICP (e.g., include Communications Coordinator instead of Regional Interoperability Coordinator [RIC])
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance
- Clarify the roles of the RIC and law enforcement mutual aid coordinator in accordance with the TICP validation Exercise Evaluation Guide recommendation

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Usage: *Established Implementation* 

The UA regularly uses the available means of interoperable communications (e.g., radio cache, gateways, and shared channels) during day-to-day, task force, and mutual aid incidents. Officials in the area report proficiency in real-world events (e.g., 2005 demonstration in Santa Clara and San Mateo counties). During the TICP validation exercise, the participants demonstrated familiarity with the equipment and successfully established interoperable communications. However, despite an overall successful exercise, there were difficulties. For example, a shared channel failed, and because there was no pre-published backup communications plan, the channel was assigned as a resource before it was repaired. Despite these challenges, the UA should be commended for its willingness to stress its communications systems and truly challenge its capabilities during a robust exercise.

Recommendations:

- Regularly test and exercise deployment of and procedures for regional interoperability resources (e.g., ICS Form 205 not distributed, radio cache not used) to improve proficiency
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Currently, the agencies within the UA field a variety of communications systems, including ones that use the very high frequency, ultra high frequency, T-Band, and 800 megahertz bands. Interoperability is achieved through a system called Bay Area Mutual Aid Communications System (BayMACS). This system provides an area wide simulcast of all four frequency bands bridged together.

The UA, through the SVRIP, has taken a short-term approach by developing a "roadmap to interoperability." The roadmap takes a "system of systems" approach that includes a number of independent and interconnected interoperable communications solutions. These include: 1) adding additional channels to the BayMACS; 2) constructing a 19-site digital microwave system that will serve as backhaul for future interoperable communications; 3) interconnecting a Bay Area-wide digital microwave Emergency Communications system for regional interoperability; and 4) conducting a pilot demonstration project to interconnect three agencies' disparate computer aided dispatch systems as part of a regional interoperability information broker system, using information sharing to augment voice interoperability.

The UA has also developed a mid-term approach. A networked gateway system will be installed to allow for additional bridging of existing systems using VoIP. Long-range planning efforts include movement to a shared system.

Santa Ana, CA
(Combined with Anaheim, CA)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The newly combined Orange County Urban Area (UA) includes the core cities of Anaheim and Santa Ana, 32 other Orange County cities, 2 state universities and the County of Orange.

Governance: *Advanced Implementation*

The Tactical Interoperable Communications Plan (TICP) was created under the authority of the Orange County Operational Area; previously established committees (e.g., 800 megahertz [MHz] Governance Committee, 800 MHz Technical Liaison Committee, Orange County Chiefs of Police and Sheriff's Association, Orange County Fire Chief's Association) are responsible for key decisions and recommendations relative to policy, training, exercises, compliance, establishment of special committees, and operational issues within the UA. The governance structure developed by the Orange County UA can serve as a model for other jurisdictions based on its breadth of local and state participation, frequency of meetings and reviews, and ability to address near-term needs and long-term interoperability goals. As documented in Section 2 of its TICP, there is a clear authority flow for interoperable communications decisions, which is inclusive of all local first responder organizations. The UA has proactively included multiple state and federal agencies in its interoperability solution through its Countywide Coordinated Communication System; however, the extent of the governance group's formal interaction with federal agencies is not stated. Additionally, the Orange County UA has a regional interoperability strategic plan in place that has been accepted by all participating agencies, is reviewed annually, and can address funding if future interoperability enhancements are required.

Recommendations:

- Continue to seek formalized participation from and coordination with state and federal agencies in governance bodies
- Continue to review and regularly update agreements (e.g., memoranda of understanding) to ensure appropriate agency participation
- Continue to identify long-term (e.g., 3 to 5 years) funding sources to support interoperable communications

Standard Operating Procedures (SOP): *Established Implementation*

The policies for use of the Orange County shared system are long established and were effectively documented in Section 3 of the TICP. SOPs have been disseminated to all included agencies and dispatch centers, and distributed through the TICP Implementation Workshop. The use of these system SOPs was well demonstrated during the TICP validation exercise. The exercise did show the need for further development of gateway SOPs. The UA indicated that it has been in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS) for less than one year, which implies that the UA is in the earlier stages of implementing NIMS/ICS policies and procedures. During the TICP validation exercise, participants demonstrated familiarity with NIMS/ICS processes (e.g.,

established and clearly announced unified command, staging area designated and entry talk group announced), but have not yet established full proficiency in these processes (e.g., no ICS Form 205 was created, plain language not used). However, as stated in the post-exercise Improvement Plan, the UA is actively pursuing improvements in the Communications Unit Leader functions pending further development of the criteria for this position.

Recommendations:
- Further develop SOPs for the use of gateways
- Continue regularly exercising SOPs that test various scenario-based command and control procedures
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Orange County UA regularly conducts multi-agency responses using its shared system. The TICP validation exercise participants were able to successfully establish interoperable communications (e.g., shared systems were used effectively, dispatch maintained fully interoperable communications with all first responders). Despite demonstrated successes and although the TICP validation exercise met set standards, broader state and federal agencies were not widely included. Assessing the degree to which the local agencies in the UA can easily use interoperable communications equipment with state and federal agencies was therefore limited. The UA is encouraged to build on its success by further integrating state, federal, and support agencies in future tests. Further demonstrating fluency and familiarity with interoperable communications solutions connecting local agencies with state and federal agencies would follow through on the recommendation in the post-exercise Improvement Plan that states that "Now that excellence with intra-county communications has been demonstrated, exercise and evaluate communications links with agencies from state, federal, and outlying jurisdictions on other radio systems."

Recommendations:
- Consider expanding exercises to integrate state and federal entities
- Continue to expand and/or document additional methods to interoperate with state and federal agencies in the UA (e.g., Naval Weapons Station)
- Consider adding communications interoperability as a component of all future exercises

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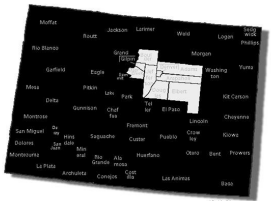
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Anaheim and Santa Ana, California public safety communications are supported by the Orange County's 800 MHz mixed-mode trunked radio system. All public safety agencies in the Orange County UA have talk groups on this system, which includes 81 channels with 400 talk groups and 16,000 radios. Given that the current radio system in Orange County provides for the highest possible level of interoperability (shared system), the next step would be to upgrade to a countywide Project 25 system.

Denver, CO

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Denver Urban Area (UA) includes the core city and county of Denver as well as agencies from Adams, Arapahoe, Boulder, Clear Creek, Douglas, Elbert, Gilpin, and Jefferson counties. This UA is also known as the North Central Region.

Governance: *Intermediate Implementation*

The Denver UA (established in July 2003) has created a communications subcommittee to make key decisions and recommendations on interoperability. The committee appears to be extremely active (bi-monthly meetings) and most agencies in the UA participated in the Tactical Interoperable Communications Plan (TICP) process. Despite their regular activity, no formal charter binds the group with defined missions, responsibilities, and authorities. No additional steps have been taken to ensure that the work of the governing body is being actively adopted within the individual agencies and that agreements are put in place for agencies noted in the TICP. Leaders in the Denver UA appear to be making budget decisions based on the communications interoperability needs of the UA as a whole, but it is unclear whether their current approach to prioritize and sustain funding is sufficient to support their long-term interoperability goals (e.g., extending solutions to other jurisdictions). The Denver UA has completed the TICP; however, a strategic plan accepted by all stakeholders is not currently in place. The Denver UA developing a strategic plan would ensure that the area's communications interoperability efforts are coordinated with the State's initiatives.

Recommendations:

- Create a formal regional governance board to manage regional multidiscipline and agency communications and coordinate with state interoperability efforts and plans relating to interoperability
- Continue to recruit and sign-on additional participants (e.g., additional emergency medical services, and public support agencies such as transportation and utilities, schools, and nearby Department of Defense facilities) to the agreements
- Develop and publish a regional strategic plan (e.g., vision, objectives, funding, procurement strategy) and obtain acceptance from all participants
- Ensure coordination of the strategic plan, once developed, with the state's plan
- Enhance the regional interoperability funding strategy and methods to include additional long-term (e.g., 3 to 5 years) funding sources in line with interoperability goals
- Ensure buy-in for standardizing distribution of information to participating agencies
- Increase the level of leadership participation in state and local jurisdictions that are outside of the city and county of Denver and adjoining county agencies, specifically the leadership of the Consolidated Communications Network of Colorado (CCNC)

Standard Operating Procedures (SOP): *Established Implementation*

The Denver UA has effectively used the TICP process to expand on existing interoperability procedures. The SOPs are regional in scope and are actively disseminated to agencies participating in communications planning in the area, providing a solid basis for implementation across the area. The Denver TICP

represented a collaborative effort with all agencies in the area and became the model upon which numerous other areas based their plans. Five training videos were also developed to help institutionalize regional procedures. This degree of training on SOPs indicates a strong commitment to ensuring SOPs adoption and should be considered a best practice. The UA has begun implementing National Incident Management System (NIMS)/Incident Command System (ICS) command and control policies and procedures, the TICP validation exercise demonstrated significant issues (e.g., use of proper ICS terminology, confusion about who was in charge of the incident or where that person was) with these procedures and therefore more training is recommended.

Recommendations:

- Distribute regional SOPs beyond the core city and county of Denver through training and exercise, and day-to-day usage
- Ensure that interoperability materials (i.e., SOPs, training information) are being distributed from regional communications meetings to all of the jurisdictions' first responders
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Denver UA regularly uses its two major shared systems, and the fixed gateway system is actively promoted and used weekly. Although some issues were encountered during the TICP validation exercise at the first responder level (e.g., radios for some agencies were not updated with appropriate channels, a radio cache request to dispatch was not fulfilled), the After Action Report indicated a "broad and largely effective use of interagency communications capabilities identified in the TICP." For example, gateway technicians demonstrated proficiency in setting up and using the gateways, and users on each of the shared systems were able to effectively communicate within the coverage area of their systems.

Recommendations:

- Continue training and exercise of interagency communications to improve the ability of users to interoperate seamlessly with responders from other jurisdictions
- Continue training on the fixed gateway system to improve familiarity with the capability
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The City of Denver and a number of agencies, primarily along the Interstate 70 corridor, use proprietary M/A-COM 800 megahertz (MHz) radio systems that are interlinked through a StarGate™ system that allows seamless roaming of approved talk groups across these systems. The State of Colorado operates the CCNC, a Project 25 (P25)-based 800 MHz system that serves state agencies and a number of local agencies, primarily east of the Rocky Mountains. CCNC is slowly being expanded throughout the state. A M/A-COM NetworkFirst™ gateway provides limited connectivity between these regional systems.

The area's estimated $100 million investment in Enhanced Digital Access Communications System equipment—some of it very recent—means this migration will take many years. In the interim, grant-funded subscriber equipment with a P25 mode for the M/A-COM systems is being purchased.

Jacksonville, FL

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedure *Established Implementation*

Usage: *Advanced Implementation*

The Jacksonville Urban Area (UA) includes the City of Jacksonville and Duval County. Because homeland security issues in Florida are addressed by Regional Domestic Security Task Forces (RDSTF), the UA has been expanded to include first responder agencies within the RDSTF Region 3 (RDSTF3) area. The expanded area includes the counties of Alachua, Baker, Bradford, Clay, Duval, Flagler, Gilchrist, Levy, Marion, Nassau, Putnam, St. Johns, and Union.

Governance: *Established Implementation*

Communications interoperability planning for the Jacksonville UA occurs within the state-defined RDSTF3 (although Region 3 includes planning for areas in addition to the Jacksonville UA). The RDSTF3 communications subcommittee was in place before the development of the Tactical Interoperable Communications Plan (TICP) and includes a variety of local, state, and federal public safety and support agencies (e.g., utilities, Florida Department of Transportation, Federal Bureau of Investigation, and U.S. Coast Guard). The area has a mix of long-standing informal and formal mutual aid agreements and formal partnerships. The UA has not developed an interoperability strategic plan, but is currently working to develop a plan (beyond the operational focus of the TICP). The Jacksonville UA reported that the RDSTF3 would ensure that the strategic plan is consistent with statewide initiatives. Agencies within RDSTF3 hold annual funding meetings to develop their budgets and procure equipment with consideration for regional interoperability. Although the area established the shared system before receiving Urban Area Security Initiative funds and appears to have committed local resources to interoperability in the past, it is unclear whether future funding plans to sustain these systems are based on Department of Homeland Security grant monies or local resources. Through the significant executive membership (e.g., mayor, judge) in its governing body, the regional government leaders have demonstrated political and fiscal support.

Recommendations:

- Consider distributing a formal charter to all participating agencies
- Establish processes to develop and review agreements (e.g., usage agreements, memoranda of understanding) at least every 3 to 5 years and after significant events or upgrades
- Develop and document a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance that takes into account a long-term (e.g. 3 to 5 years) communications funding strategy (in addition to grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met

Standard Operating Procedures (SOP): *Established Implementation*

The Jacksonville UA incorporated existing informal interoperability policies and procedures (e.g., Florida Sheriffs' Association, Florida Fire Chiefs, and the State of Florida Division of Emergency Management had emergency plans with interoperable communications elements) into the TICP. The UA was able to demonstrate familiarity with these regional interoperability SOPs during the exercise, but experienced some procedural problems (e.g., gateway activation and deactivation procedures were not followed) with available

equipment. The Jacksonville UA has been implementing the National Incident Management System (NIMS)/Incident Command System (ICS) for more than 6 months. Despite such a recent implementation, the participants were proactive and demonstrated proficiency with many command and control aspects related to interoperable communications during the exercise (e.g., designating both a Communications Unit Leader and communications technician), but could benefit from further NIMS/ICS training.

Recommendations:

- Document and distribute regional communications interoperability SOPs (beyond the TICP) and put them into practice through regular training (e.g., in-service refreshers and basic training courses), exercises, and usage
- Consider developing policy on avoiding use of commercial services (e.g., cellular telephones) for mission-critical communications
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

The Jacksonville UA primarily uses nine local and state shared systems for day-to-day interoperability and gateway systems (e.g., Florida Interoperability Network [FIN]) for interagency communications. The UA has demonstrated proficiency in using these resources during real-world events (e.g., Super Bowl XXXIX and multiple hurricanes throughout the area and state). Jacksonville officials indicated that further training is needed on how to best access and use communications and response resources that exist beyond the area (i.e., the State of Florida's FIN and Florida's Mutual Aid Resources usage process). The TICP validation exercise was large in scope and, despite a few minor problems (e.g., interrupted transmissions on shared channels because most responders were on one channel, and use of individual talk groups instead of broadcasting on a shared channel), the participants demonstrated that they can effectively communicate among agencies to handle a large-scale incident.

Recommendations:

- Encourage training on Mutual Aid Resources specific to interoperable communications and the FIN
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Jacksonville UA is supported by approximately 18 separate radio systems that include M/A-COM, Motorola, and EF Johnson conventional and trunked systems. These systems operate in the very high frequency (VHF), ultra high frequency, and 800 megahertz (MHz) bands. The City of Jacksonville operates an 800 MHz, Motorola SmartZone™, mixed mode system. Regional interoperability is supported by the FIN, the Statewide Law Enforcement Radio System (SLERS), cached radios, shared channels, and gateways. Statewide interoperability is achieved through the use of the SLERS and FIN. In conjunction with the Department of Justice, the Jacksonville UA has implemented a VHF repeater system using ACU-1000 fixed gateways to connect the Duval County First Coast 800 MHz system to the VHF systems used by federal agencies in the area. Of the 227 fixed gateways that are part of the FIN, approximately 30 are in the Jacksonville UA, along with approximately 11 mobile gateways. The planned 2007 grant request process includes initiatives to upgrade the Duval County First Coast 800 MHz system to a Project 25-compliant system and to acquire a transportable radio system equipped with a collapsible tower assembly.

Miami, FL

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The Miami Urban Area (UA) includes the Southeast (Florida) Regional Domestic Security Task Force (SERDSTF), which encompasses the cities of Miami and Fort Lauderdale, and the counties of Broward, Miami-Dade, Monroe, and Palm Beach.

Governance: *Intermediate Implementation*

As noted in the exercise After Action Report, "it is clear…that there is a high degree of cooperation and coordination among the agencies in the Miami area." This cooperation clearly supports the UA's ability to excel across SOPs and usage, but does not provide a formalized structure for longer term interoperable communications planning. For the purpose of the Tactical Interoperable Communications Plan (TICP), the Miami UA has been expanded to include the SERDSTF, which is a formal body established by the State of Florida to address broad homeland security issues. Within the SERDSTF, the communications working group has the responsibility for recommending interoperability initiatives to be addressed through federal grants in the area. Despite the SERDSTF formalized processes to collect input from the communications working group, there doesn't appear to be a charter formalizing the working group's authority. Individual agencies make budget decisions independent of its recommendations. In addition, the documentation provided does not indicate that the Miami UA is conducting strategic planning specific to interoperable communications that would build upon the broad goals set forth in the Urban Area Homeland Security Strategic Plan. The development of a more focused interoperable communications strategic plan or annex would facilitate longer term budget planning for the region as a whole.

Recommendations:

- Review the limitations on active membership defined in the state guidelines to facilitate participation by necessary public support disciplines
- Document the necessary agreements (e.g., memoranda of understanding) to achieve regional interoperability, and reference all applicable agreements in the TICP and store them in an accessible format
- Suggest development of a regional strategic plan, obtain acceptance from all participants, and suggest a review and clarification of the communication subcommittee's roles and responsibilities
- Continue to aggressively seek funding sources for immediate and long-term interoperability needs while, at the same time, developing a regional plan to budget and prioritize funding for interoperable communications needs
- Suggest reviewing whether the current governance structure can fully support strategic planning for the entire area, or whether alternatives should be considered

Standard Operating Procedures (SOP): *Advanced Implementation*

The Miami UA has a long history of successfully addressing communications challenges, as demonstrated by their established SOPs and regular use of interoperability equipment. The Miami Urban Area Security Initiative/SERDSTF has well-established SOPs dating back to the aftermath of Hurricane Andrew in 1992.

These SOPs have been successfully integrated into the TICP, with Miami taking the step of designing the TICP as an annex to its Terrorism Response Plan. The area has disseminated these policies to all participating agencies and to conduct regular interoperability training. The National Incident Management System (NIMS)/Incident Command System (ICS) was implemented more than 1 year ago and is integrated into regional SOPs. The UA demonstrated proficiency in these areas through its TICP validation exercise. For example, the Incident Commander established a unified command consisting of fire, emergency medical services, and law enforcement personnel. Additionally, the Communications Unit Leader was designated and announced to participants.

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

The Miami UA has demonstrated cooperation and the ability to work across all levels of government and all types of public safety responders. The City of Miami and Miami-Dade County interoperate on a daily basis via shared channels, gateways, and shared systems despite using disparate systems. In addition, state and federal agencies are regularly supported through the use of radio caches and/or gateways. The use of regional equipment by local, state, and federal agencies in the TICP validation exercise was described by the evaluators as "exemplary" (e.g., specific instructions were distributed with the radio caches, gateways and the Miami City shared system were effectively used).

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Miami UA has many agencies operating on trunked 800 megahertz (MHz) radio systems. These systems include both M/A-COM and Motorola proprietary products that do not directly support interoperability. The state is building out mutual aid channels in the ultra high frequency and 800 MHz bands. The state has implemented a Voice over Internet Protocol solution connecting nearly all public safety answering points. Miami-Dade County has started a process to migrate to a Project 25-compliant radio system. This will give the surrounding counties (Broward, Monroe, and Palm Beach) an opportunity to improve interoperability. In addition, all four counties are planning on establishing common talk groups/interoperability channels in each radio that is capable of communicating with the neighboring counties.

Tampa Bay, FL

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

The Tampa Bay Urban Area (UA) includes Hillsborough and Pinellas counties and the cities of Tampa, St. Petersburg, and Clearwater.

Governance: *Established Implementation*

The Tampa Bay UA, led by the recommendations of its communications governance group, has increasingly considered communications interoperability a priority. Since 2003, the regional communications working group has been integrated within the Regional Domestic Security Task Force (RDSTF)—Region 4. While the group has been successful in focusing local leaders on the issue of communications interoperability, it was not clear whether the RDSTF structure provides the working group with enough formal authority and responsibility (outside of Department of Homeland Security grant decisions) to be effective in activities such as recruitment of state and federal representatives, development of formal agreements, and establishment of strategic plans. Published agreements exist to facilitate interoperability among some agencies. A strategic planning process is in place, but no regionally agreed-upon document has been produced and published to address present and future strategic interoperability efforts or to consider long-term funding strategies that address operating costs and funding sources in addition to grant funds.

Recommendations:

- Continue to practice on the established agreements (e.g., memoranda of understanding) to facilitate communications interoperability among first responder agencies
- Continue the regional strategic planning process and obtain acceptance from all participants
- Encourage a regional interoperability funding strategy, including long-term (e.g., 3 to 5 years) funding sources (in addition to grants)
- Continue to broaden and champion a governance structure that would more fully support regional communications interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The Tampa Bay UA has integrated formal and informal SOPs for most aspects of its interoperable communications into its Tactical Interoperable Communications Plan (TICP). The TICP represents the first set of regional interoperability SOPs and has been embraced by the area. The TICP is being regularly updated and disseminated to all agencies. Adherence to the Florida Interoperability Network (FIN) policies were an area of difficulty during the TICP validation exercise, perhaps because FIN policies are new and had not been added to the TICP nor practiced by participating agencies. Tampa Bay officials report that they are in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS) through training. NIMS principles appear to have been integrated into fire operations, but less so within the area's law enforcement community. Additionally, the exercise evaluators noted that establishing unified command among incident commands was an issue, which limited the effectiveness of the Communications Unit Leader in managing the two incident sites.

Recommendations:

- Continue to train, exercise, and review SOPs on a regular basis to increase consistency and proficiency across participating agencies
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

Multi-agency communications occur daily in the Tampa Bay UA on its two major shared 800 megahertz (MHz) systems, and console patches are regularly used to connect the City of Tampa Police Department's disparate system. The Tampa Bay UA adequately demonstrated the ability to interoperate during what evaluators noted was a complex exercise. For example, gateways were effectively used at one of the exercise sites, but at the other site, participants had trouble connecting the gateway to FIN and a required tactical channel was not found on one of the consoles. As noted in the post-exercise Improvement Plan, additional training on the use of fixed gateways (specifically the newly implemented FIN) could be pursued to address identified gaps (e.g., difficulty establishing communications and in using the FIN for communications). Additionally, the reliance on commercial services for mission-critical communication was outside the scope of documented procedures.

Recommendations:

- Continue to train and exercise on available technology (e.g., gateways) to improve familiarity with and use of their interoperable communications capability
- Consider developing policy on use and limitations of commercial services (e.g., cellular telephones)
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Tampa Bay UA, designated as the RDSTF—Region 4 by the state, has many agencies operating on trunked, 800 MHz systems. These include both M/A-COM and Motorola systems that do not directly provide for interoperability. Additionally, distant counties rely on ultra high frequencies (UHF), both simplex and trunked, for their primary communications. The state is building out mutual aid channels in UHF and 800 MHz bands and has implemented a Voice over Internet Protocol solution connecting nearly all public safety answering points.

The Tampa Police Department has initiated a process to migrate to a Project 25-compliant system. This will give the surrounding counties an opportunity to improve interoperability. Tampa Bay also applied for a United States Department of Justice Community Oriented Policing Services grant. Although the application was rejected, officials are planning to resubmit. Furthermore, a mobile 10-channel, 800 MHz trunked Motorola system in Pinellas County is also available to the UA. It has been extensively used in past years to support response and recovery operations for local and out-of-area hurricane damage.

Atlanta, GA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Advanced Implementation*

The Atlanta Urban Area (UA) includes the City of Atlanta, Cobb County, Fulton County, and Dekalb County. Also participating in the UA are the Georgia Technology Authority and the Georgia Emergency Management Agency, state agencies that are providing procurement and oversight support. Six counties, including Douglas, Henry, Gwinnett, Clayton, Fayette, and Rockdale, will eventually be added to the plan.

Governance: *Intermediate Implementation*

Communications interoperability issues in the Atlanta UA are governed by a Steering Committee consisting of representatives of the core jurisdictions of the City of Atlanta, Dekalb, and Fulton counties. The Steering Committee accepts recommendations directly from the All Hazards Council Area 7 Communications Subcommittee. This subcommittee has become more active in communications interoperability due to its involvement with the development of the Tactical Interoperable Communications Plan (TICP). While the subcommittee has a broad list of participating agencies, it is not clear whether this group of state, federal, and support organizations are included as officials subcommittee members. There are published and active agreements in place that facilitate communications interoperability with some agencies in the UA (e.g., mutual aid agreement in place among Cobb, Fulton, Georgia State Patrol, and City of Atlanta). In addition, the documentation provided indicates that the Atlanta UA is developing an interoperable communications strategy that would build upon the broad goals set forth in the Urban Area Homeland Security Strategic Plan, which was the basis for the TICP development. Once developed, the strategic plan will address interoperability beyond the operational focus of the TICP and the broader scope of the Urban Area Homeland Security Strategic Plan. It appears that current funding decisions are based on individual agency needs as opposed to regional priorities, which limits coordinated planning to meet longer term interoperability goals. The Atlanta UA leadership has been involved in the TICP process. For example, two city Mayors are involved in the All Hazards Council Area 7/UA Working Group.

Recommendations:

- Encourage public support, state, and federal agency participation (e.g., utilities) in the decision-making group and define roles and responsibilities
- Establish processes to develop and review agreements (e.g., usage agreements, memoranda of understanding) at least every 3 to 5 years and after significant events or upgrades
- Document and implement the regional strategic plan (beyond the operational focus of the TICP), with participant approval, adoption, and acceptance
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Incorporate a regional interoperability funding strategy into the strategic plan, such as considering funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts
- Continue to broaden and champion a governance structure that would more fully support regional communications interoperability
- Given the area's progress to date, motivate broader acceptance of interoperability as both a political and fiscal priority for the area and state

Standard Operating Procedures (SOP): *Established Implementation* 

The Atlanta UA TICP was built on existing SOPs, including regional SOPs developed through the Department of Justice 25 Cities Project. The UA has taken numerous steps to disseminate the TICP to all participating agencies (e.g., distribute to dispatch centers and through TICP Implementation Workshop, available with gateways). The Atlanta UA has also already updated the plan since its submittal, including a newly implemented Project 25 (P25) system. Use of these communications interoperability SOPs were successfully demonstrated during the TICP validation exercise. The Atlanta UA has been implementing the National Incident Management System (NIMS)/Incident Command System (ICS) within the last year. Although the TICP validation exercise showed that both law and fire commanders were proficient in NIMS, it was noted in the After Action Report that law enforcement needs additional command and control training. It was notable that the Communications Unit Leader (COML) showed "extensive knowledge of his equipment and ways to create interoperable communications."

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Advanced Implementation* 

The Atlanta UA has 26 separate radio systems that provide communications to first responder and support agencies. Despite this diverse infrastructure, the UA has been successful in using interoperable communications assets in its TICP validation exercise and real-world responses. Shared systems are used daily to provide multi-agency communications. The City of Atlanta and Fulton County operate separate 800 megahertz (MHz) infrastructure but share system keys. The Atlanta mobile gateway used in the exercise was pre-programmed, which evaluators noted as a best practice. Shared channels in the UA are reserved for situations requiring the coordination of multiple public safety agencies and were successfully used during the TICP validation exercise. The exercise included state and federal agencies—when the Federal Bureau of Investigation's equipment failed, the Atlanta UA provided the Bureau with a cached radio to support communications.

Recommendation:

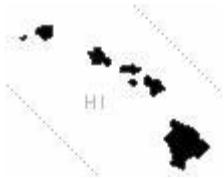
- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Atlanta UA has 26 separate radio systems that cover 9 counties, which is inclusive of the metropolitan Atlanta area. The UA also relies on NEXTEL and SouthernLINC Enhanced Special Mobile Radio commercial systems to support wireless voice and data communications. The City of Atlanta and Fulton County operate separate 800 MHz radio systems but share system keys enabling access by city and county representatives. Atlanta operates a Motorola 800 MHz SMARTNET™ Citywide Radio System supporting 18 separate local, state, and federal agencies. Regional interoperability is provided by the Motorola P25-compliant, 800 MHz ASTRO 25 system. The system is used exclusively to support interoperability among regional first responders. The Atlanta UA is reaching beyond its immediate jurisdictional footprint to embrace all nine counties that make up the metropolitan Atlanta All Hazard Fulton County Emergency Services (Area 7) Council footprint. It is the intent of UA planners to leverage the new systems and the current UA P25, Motorola ASTRO 25 800 MHz system to form the most effective interoperable communication strategy. This may include connecting new systems to the UA switch or leveraging/implementing other technology solutions to achieve regional interoperable communications.

Honolulu, HI



Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The Honolulu Urban Area (UA) includes the city and county of Honolulu, which encompasses the island of Oahu.

Governance: *Intermediate Implementation*

The Public Safety Oversight Committee (PSOC), established in 2002, provides governance on communications issues. The PSOC has become more formalized with an established charter in the last year and a half as a result of the Tactical Interoperable Communications Plan (TICP) mandate, and most agencies are now participating in the process. The UA has informal agreements in practice that facilitate communications interoperability. A memoranda of agreement has been drafted for first responders, and all participating agencies have agreed to sign the agreement except for Honolulu law enforcement. Additionally, regional memoranda of agreements (including an agreement with State Health) remain informal. The Honolulu UA has not developed a regional interoperability strategic plan, but is in the process of developing a plan. Local leaders have taken rapid steps to improve their interoperability through a series of communications tabletops. Although funding is still largely distributed for agency needs, Honolulu's long-term planning through the 5-year capital plan and the fiscal coordination laid out in the TICP have set the stage for regionally coordinated improvements.

Recommendations:

- Work with the State Department of Health to establish an interoperability agreement with City of Honolulu for emergency medical services
- Clarify that published and active agreements (e.g., memoranda of understanding) are in place among all necessary first responders and work to get any needed agreements implemented
- Continue to develop the strategic plan that has already been initiated
- Attempt to align local and state strategic planning efforts to ensure that a regional strategy has been established; also apply this regional approach to long-term (e.g., 3 to 5 years) interoperability funding and planning
- Establish interoperability SOPs and associated training as a priority across the area

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Honolulu UA achieved its first regionwide communications SOPs through the development of the TICP. The UA did not have policies and procedures in place before the development of the TICP. The new plan has been distributed to all agencies (e.g., distributed to dispatch centers and through TICP Implementation Workshop, available with gateways) and has been exercised. Officials indicated that they plan to build on this collaborative TICP effort to address communications with the surrounding islands. The National Incident Management System (NIMS)/Incident Command System (ICS) was mandated more than 1 year ago through the adoption of a city resolution, and training is being implemented to fully familiarize all personnel. Although the TICP validation exercise demonstrated difficulty in establishing unified command (e.g., there

was a lack of clear delineation of roles and responsibilities within the ICS organizational chart), the UA has taken adequate steps to integrate the Communications Unit Leader position into a multi-agency response.

Recommendations:
- Incorporate TICP policies, practices, and procedures into regionwide public safety training curriculum
- Incorporate After Action Report changes and post-exercise Improvement Plan recommendations into the existing TICP
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Through the cooperation fostered by the TICP process, the Honolulu UA has increasingly used interoperable communications solutions (e.g., radio cache, shared channels, gateways, shared systems). Honolulu Police and Fire now operate on a shared system and have implemented shared talk groups that are frequently used. The TICP validation exercise exposed some load issues with their shared system, as well as problems with gateways critical to multi-agency communications (especially with state and federal agencies) on the island. Despite the minor problems, local first responders were able to interoperate via City of Honolulu's shared system.

Recommendations:
- Train regional communications specialists in interoperability solution capabilities (e.g., tactical use of talk groups) to more effectively communicate during an incident
- Increase the frequency of use of the mobile and fixed gateways available to responders
- Seek opportunities to incorporate mobile and fixed gateways through regular tests, planned events, and exercises
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Honolulu UA's first responders operate on a 800 megahertz (MHz) M/A-COM Enhanced Digital Access Communications System (EDACS™) trunked radio system. Several public safety agencies in the UA use this system, including Honolulu Police Department, Honolulu Fire Department, Emergency Services Department, Department of Information Technology, Oahu Civil Defense Agency, and Department of Transportation Services. However, interoperability is needed with other shared systems, including the ultra high frequency (UHF) system that supports the State Department of Health, hospitals, medical centers, and the U.S. Coast Guard (USCG); the UHF Pacific Mobile Emergency Radio System (PACMERS) supporting Department of Defense (DoD) agencies; and two very high frequency (VHF) systems supporting federal and state agencies. Interoperable communications is provided through shared and command-level talk groups. City and state agencies also maintain five mobile and two fixed ACU-1000 gateway systems. Voice interoperability between the city and county of Honolulu (800 MHz) and state and federal agencies (UHF and VHF High Band) is primarily provided through these gateway solutions and/or a shared VHF channel. Interoperability between city response agencies and the USCG is provided via a gateway on a Free Space Optic link and through a dedicated USCG talk group on the City's 800 MHz EDACS shared system. Interoperability among PACMERS users and the city and county of Honolulu is provided through two fixed gateway solutions.

Chicago, IL

Tactical Interoperable Communications Scorecard

Summary

Governance: *Early Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Chicago Urban Area (UA) includes the City of Chicago and Cook County, including 128 municipalities.

Governance: *Early Implementation*

Through the UA Working Group, the UA is starting to take steps necessary to address long-standing technical and operational issues among public safety organizations in the Chicago UA. While interoperability is presently a top priority in the UA and is being addressed, the area has a great deal of historical challenges to overcome. As reported in the overview of the Tactical Interoperable Communications Plan (TICP), "[t]he City of Chicago and Cook County for decades have been developing very extensive and expensive legacy radio communications systems independently, and without considering the concept of interoperable communications." Governance for communications within the Chicago UA has been assigned to a Communications Subcommittee. The group has not been formalized and initially was divided between a City of Chicago Working Group and a Cook County Working Group. The TICP Peer Review recommended that the group "strongly consider merging the multiple working groups into one governance organization or clarifying how issues of disagreement between Cook County and Chicago working groups are/will be addressed." Agreements are largely informal, and the city's process for developing and confirming the agreements differs from the process in Cook County. Efforts have begun to develop a strategic plan for the UA; however, this effort is at an early stage and will require coordination between the city and county to be successful. A regional approach to interoperability funding does not appear to be a priority (e.g., communications equipment is procured largely based on agency-specific needs). Leaders within the City of Chicago and Cook County have been independently very supportive of the communications interoperability issue (e.g., Cook County is developing a shared system supporting numerous municipalities), but could still continue efforts to come together at the leadership level to actively pursue regionwide communications interoperability.

Recommendations:

- Continue progress toward a unified governance structure (city and county)
- Establish a charter for the unified working group and implement a regular meeting schedule to actively work issues to improve regional (tactical and strategic) interoperability
- Document and formalize agreements (e.g., memoranda of understanding) among all participating agencies to support partnerships on regional interoperability and allocate resources to implement them
- Establish a regular review process for agreements to ensure that they remain current and relevant
- Develop and document a consensus regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance, and align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Develop and implement a regional approach to long-term interoperability planning and sustainable funding (beyond funding for individual jurisdictions and their systems)
- Encourage regional funding alternatives and sources in addition to grants
- Identify a champion(s) to establish a governance structure that more fully supports a regional strategic plan and involve senior government leadership broadly across the area in interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Chicago UA has taken advantage of the TICP effort to begin a formalization process for its communications interoperability policies, practices, and procedures for the first time. The area has taken steps to disseminate the SOPs

through a TICP workshop, but not in any broader manner that would ensure awareness and understanding of the procedures. This lack of awareness of SOPs was evident during the exercise (e.g., lack of familiarity with the radio cache procedures). The UA is in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS), and is currently undergoing a significant training effort to take steps toward NIMS/ICS compliance and SOP adoption. The State has certified the City as moving toward its 2006 goals for NIMS compliance. The UA demonstrated success with ICS command and control during the TICP validation exercise with limited problems (e.g., incorrect use of ICS forms, Communication Unit Leader procedural oversights).

Recommendations:

- Develop regional interoperability SOPs consistent with the TICP, disseminate them throughout the UA, and train all participating agencies
- Identify the title and source documentation for existing SOPs in the TICP
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

To address a fragmented regional communications infrastructure in which there are insufficient communication channels for joint operations within the City of Chicago, UA first responders use a number of methods to achieve communications interoperability. The UA successfully demonstrated the use of cached radios, which provided effective communications with the federal agencies (i.e., the Federal Bureau of Investigation). This interoperable solution (through the Mutual Aid Box Alarm System) has also been used in various real world circumstances to provide interoperability among command personnel across the City and surrounding municipalities. Chicago officials indicated that responders often used commercial devices to communicate, for which there were no established TICP procedures, which is problematic for establishing interoperable communications during a multi-agency incident response. During the TICP validation exercise, gateway use was problematic. Considering that the gateway was one of two means of interoperability between the County and the City, ineffective use of it could challenge multijurisdictional communications. As reflected in the TICP validation exercise, the lack of available channels to share between agencies during an incident could impact the effective management and resolution of communications. Additionally, specific TICP usage procedures were not observed (e.g., extra charged batteries for extended radio deployment, ensuring qualified technicians were available for on-scene support, and properly labeled radios with the owning agency and frequency band) likely due to the limited nature (e.g., incident command level only) of the exercise.

Recommendations:

- Test and exercise deployment of regional interoperability resources regularly to improve proficiency (e.g., mobile gateway systems)
- Practice multijurisdictional and multidisciplinary communications during future exercises and day-to-day activities
- Consider reviewing current interoperable communications equipment and infrastructure to determine whether existing systems and/or technology is sufficient to support regionwide interoperability

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The City of Chicago uses both ultra high frequency and very high frequency (VHF) systems. Cook County uses a VHF and 800 megahertz system. There is no existing shared system for the city and county jurisdictions. Shared channels are available for interoperability but are not typically used. When city personnel operate in the suburbs, they use regional shared channels, while responders coming into the city are often provided with cached radios. Chicago and Cook County are working together to develop a plan for future radio interoperability communications for the entire Chicago area, which will benefit both jurisdictions. By the end of 2006 the Federal Government will have a two-channel shared radio system in place that will cover the five counties that represent the Greater Chicago Area.

Indianapolis, IN

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Indianapolis Urban Area (UA) includes the City of Indianapolis in Marion County and agencies and jurisdictions within Hamilton County.

Governance: *Intermediate Implementation*

The Indianapolis UA is working toward establishing communications interoperability as a priority in the UA. The UA established the Interoperability Subcommittee in April 2005 for the development of the Tactical Interoperable Communications Plan (TICP), as well as for overall communications coordination. While the TICP has been a positive step in establishing the governance group, the group does not appear to be formalized through a charter that describes its authority or the overall governance structure. However, the UA does report that an interoperability strategic plan is in place and has been accepted by participating agencies. Formal agreements (e.g., memoranda of understanding [MOU]) establishing roles and responsibilities of partner agencies in the UA for interoperability are not currently established. The jurisdictions have been successful in securing funding from federal grants as well as local sources, but there is no long-term funding strategy in place to pay for recurring costs for interoperable solutions. Additionally, individual organizations develop and maintain their own budgets and procure interoperable communications equipment based on agency-specific needs.

Recommendations:

- Establish a charter to encourage formal membership in the decision-making group (including all necessary first responder agencies)
- Document and formalize the necessary agreements (e.g., MOU) including local, state, and federal agencies to support partnerships on regional interoperability, and reference all applicable agreements in the TICP and store them in an accessible format
- Establish and clearly distinguish the strategic plan (beyond the operational focus of the TICP), and update it annually and after system upgrades and events that test capabilities
- Encourage a regional interoperability funding strategy, including long-term (e.g., 3 to 5 years) funding sources that address both counties in the Indianapolis UA; this funding strategy should address capital and recurring costs
- Establish a direct relationship between the Interoperability Subcommittee and political and fiscal leaders at the local and state level to advocate for achieving goals outlined in the strategic plan

Standard Operating Procedures (SOP): *Established Implementation*

The development of the TICP used the two counties' policies and procedures as a foundation, providing the UA's first set of coordinated regional communications interoperability SOPs. The TICP will be expanded and more broadly distributed during the first quarter of 2007 to include additional regions within the state. Since its completion, the UA has taken steps (e.g., distributed through the TICP Implementation Workshop, make gateway SOPs available with gateways) to disseminate these newly developed, regional SOPs. During the TICP validation exercise, TICP policies and procedures for radio cache activation and deactivation were

followed. However, despite the overall success of the exercise, some activation procedures were not used (e.g., participants did not clear the shared channel before activating a console patch). The Indianapolis UA has been implementing the National Incident Management System (NIMS)/Incident Management System (ICS) for more than 1 year, and the Communications Unit Leader position was used effectively during the exercise. During the exercise, the Incident Commander was clearly identified, and a command post was set up.

Recommendations:
- Distribute SOPs to include all participating agencies and dispatchers
- Update the TICP to reflect regionwide operational communications procedures
- Ensure that regional SOPs are aligned with statewide planning efforts
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Multi-agency communications within the area (specifically Hamilton and Marion counties) occur on a daily basis. The existing systems (e.g., 800 megahertz [MHz]) use different proprietary technologies, and, as a result, gateways are used on a regular basis and are tested weekly. These methods, as well as shared channels and a radio cache, were used effectively during the TICP validation exercise. For example, interoperable communications were established between Metropolitan Emergency Communications Agency (MECA) and Hamilton County using a gateway. Although the Indianapolis UA showed success across local agencies involved in the exercise, additional state, federal, and public support agencies were not included to the maximum extent possible in this event; their involvement in future exercises would help demonstrate broader interoperability across disciplines and levels of government.

Recommendations:
- Consider expanding exercises to involve private, state, and federal agencies to ensure consistency of how to apply interoperable communications
- Consider adding interoperability as a component for all future exercises

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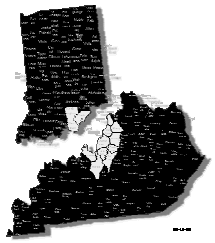
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

All public safety and public service agencies in Marion County use an 800 MHz Motorola radio system provided by the MECA. Public safety and public service agencies in Hamilton County use an 800 MHz M/A-COM radio system provided by Hamilton County. All agencies in Hamilton and Marion counties are interoperable with each other and use the National Public Safety Planning Advisory Committee (NPSPAC) channels. In addition, console patches and/or gateways will also be used for interoperability. The UA will continue to use the NPSPAC channels, console patches, and gateways to achieve interoperability between the two counties.

Louisville, KY

Tactical Interoperable Communications Scorecard



Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

The Louisville Urban Area (UA) includes the City of Louisville; the Kentucky counties of Bullitt, Hardin, Henry, Jefferson, Meade, Nelson, Oldham, Shelby, Spencer, and Trimble; and the Indiana counties of Clark, Floyd, Harrison, and Washington.

Governance: *Established Implementation*

The Louisville UA's governance group is the Communications Committee (within the Urban Area Working Group), which has been active and successful primarily in the development of its regional gateway system. The success of this group has been evident in the grant and local funding that has been devoted to the MetroSafe effort. With the development of the Tactical Interoperable Communications Plan (TICP), the group formalized its preexisting agreements and SOPs by establishing charters. The work of the governance group, both in its tactical and strategic planning efforts, appears heavily focused on the core city/county, but did not incorporate all counties included in the UA. At the state level, the Kentucky Wireless Interoperability Executive Committee was established to coordinate and make recommendations regarding policy, training, exercises, compliance, establishment of special committees, and operational issues within the Commonwealth.

Recommendations:

- Clarify whether published and active partnerships exist for all counties (i.e., Washington County)
- Work to develop a regional strategic plan that has political and financial support throughout the area
- Coordinate with all necessary participants across the area and work jointly toward development of interoperable communications capabilities consistent with the regional strategic plan
- Review and champion a governance structure that would more fully support a regional strategic plan encompassing the entire UA
- Expand leadership participation to include representation across the area

Standard Operating Procedures (SOP): *Established Implementation*

Agencies in the Louisville UA have had communications interoperability policies and procedures in place for a number of years. Prior to the TICP, these SOPs were captured in a compilation document. Since the development of regional SOPs through the TICP, the UA has taken a number of steps to disseminate this information to all agencies (e.g., gateways SOPs available with gateways, distributed through TICP Implementation Workshop). The UA has been implementing National Incident Management System (NIMS)/Incident Command System (ICS) for more than 1 year, which indicates that the agencies have spent some time aligning their prior command and control procedures to be NIMS compliant. Agencies participating in the TICP validation exercise used the NIMS/ICS and the Communications Unit Leader (COML) with some issues (e.g., the COML was not formally identified) that should be addressed as additional training becomes available. These gaps in SOP implementation are likely due to the fact that the exercise ("Thunder Over Louisville") represented the first time the entire NIMS/ICS was used across all first responder agencies.

Recommendations:

- Ensure all regional communications interoperability SOPs are incorporated into the TICP and distributed to participating agencies (outside of Jefferson County)
- Regularly practice SOPs to increase proficiency in use of these policies (e.g., minimize use of patched channels to maximize channel resources by maintaining a clear command and control structure)
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The Louisville UA has been successful in the use of its gateway system to provide multi-agency and multijurisdictional communications in the Louisville/Jefferson County area. This solution has allowed the UA to provide shared communications across multiple existing systems and frequency bands. The documentation did not note to what extent this system is currently providing interoperability to the UA (including the four Indiana counties), and if it is not, how communications interoperability is achieved. This concern about regular usage with these counties was reinforced by the lack of representation from these counties in the TICP validation exercise (e.g., Jefferson County was the only county included). The exercise showed difficulty using shared channels and radios caches. In addition, there are concerns (similar to both the TICP Peer Review recommendations and the exercise evaluator comments) that the UA relied too heavily on the gateway system.

Recommendations:

- Test and exercise the activation procedures for radio caches
- Because previous reviews noted concern in potential overloading of channels connected by fixed gateway system, ensure that only priority staff use the fixed gateway solution in situations where there is potential for overloading
- Begin planning for training and exercise plans for forthcoming standards-based shared system
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Agencies within Jefferson County (Louisville UA) use a mixture of very high frequency (VHF) low band, VHF High Band, ultra high frequency (UHF) and 800 megahertz (MHz) conventional radio systems. Metrosafe, Louisville's designation for radio communications interoperability, uses an audio bridge (Motorola MotoBridge™) to patch together most urban police and fire agencies with suburban police and fire agencies.

Louisville Metrosafe is continuing the development of a radio infrastructure with the capacity to provide seamless communications interoperability for multiple public safety and public service organizations within Jefferson County and its surrounding UA. The technology that has been chosen will be Project 25-compliant in a trunked, simulcast, narrowband configured, 700/800 MHz radio system. The goal is to cover Jefferson County and an area 3 miles beyond the county line with signal coverage capable of supporting handheld radios carried at the hip-level. This new radio infrastructure is meant to address challenges resulting from two different interoperability efforts between the City of Louisville and Jefferson County. In January 2003, the City of Louisville and Jefferson County began coordinating their interoperability efforts to address these challenges including antiquated technology and discipline specific communications centers with different/marginal funding streams.

Baton Rouge, LA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Early Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Baton Rouge Urban Area (UA) includes the City of Baton Rouge and the following parishes: Ascension, East Baton Rouge, East Feliciana, Iberville, Livingston, Pointe Coupee, West Baton Rouge, and West Feliciana.

Governance: *Early Implementation*

As noted by the UA, governance in Baton Rouge must "continue moving from traditional stovepipe operational mentalities towards a regional, collaborative mindset supporting the need for and implementation of interoperability." An Interoperability Committee exists within the Urban Area Security Initiative structure, but the membership is primarily emergency management agencies. The UA indicates that it is trying to involve additional first responder disciplines and notes the need for more state and federal participation as a current challenge. Agreements among agencies are largely informal, and no strategic plan has been developed to coordinate planning efforts in the UA. Although leaders in the UA are supportive of the communications interoperability issue, it does not appear that a long-term (e.g., 3 to 5 years) fiscal strategy to improve regional interoperability (in addition to federal grants) has been developed.

Recommendations:

- Ensure representation from first responder agencies across the UA in the governance group and clarify roles, responsibilities, and relationships
- Establish the Region II Interoperability Committee through a formal charter, include all local, public support, state, and federal agencies (e.g., public health, utilities), and document roles and responsibilities as part of the group
- Develop, document, and formalize agreements (e.g., signed memoranda of understanding [MOU] with defined roles and responsibilities) among all participating agencies relating to regional interoperability
- Reference all applicable agreements (e.g., MOUs, intergovernmental agreements) in the Tactical Interoperable Communications Plan (TICP) and store them in an accessible format
- Establish a regular review process to ensure that agreements remain current and relevant
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (in addition to grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Develop and implement a regional approach to long-term (e.g., 3 to 5 years) sustainable funding that is consistent with the strategic plan
- Begin to broaden and champion a governance structure that will support regional communications interoperability and involve senior regional government leadership in long-term funding plans

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Baton Rouge TICP provided the first regional interoperability SOPs for the UA. Although strong representation from throughout the UA was included in the development of the TICP, the documentation did not indicate the extent to which these policies have been accepted in the UA. Based on the TICP validation exercise evaluation, more work is needed to promulgate and practice these procedures; SOPs have not been officially disseminated to all area organizations. Baton Rouge officials are addressing this need as indicated by a remote training program under development through the Emergency Operations Center network, which could support SOPs training. Full acceptance and ongoing training of SOPs will be critical in addressing gaps that were encountered during the validation exercise

(e.g., failure to broadcast Communications Unit Leader [COML] designation). Likewise, the exercise evaluation indicated that some issues were encountered with the use of the National Incident Management System (NIMS)/Incident Command System (ICS) (e.g., Unified Command and COML responsibilities not announced). The TICP notes that NIMS is not required (only recommended) of agencies in the UA, which is not in line with guidance provided for all grantees.

Recommendations:

- Develop regional communications interoperability SOPs (beyond the TICP) with acceptance by first responder agencies across jurisdictions and disciplines
- Distribute and put SOPs into practice through regular training, exercises, and usage (e.g., communications interoperability among the eight parishes)
- Consider scheduling a regular review and update process of developed policies and procedures
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

Officials in Baton Rouge indicated that they were using their numerous shared radio systems (e.g., six 800 megahertz [MHz] systems, two ultra high frequency [UHF] systems, one very high frequency [VHF] system) and shared channels on a daily basis for multi-agency communications. Gateways are regularly used to connect these disparate systems in the UA, but there were observed difficulties in operating on the infrastructure in the TICP validation exercise (e.g., use of 10 codes). Upon failed attempts to leverage interoperability solutions detailed in the TICP, many exercise participants resorted to commercial cellular technology rather than continuing efforts to reconcile technical difficulties. Evaluators noted, "Cell phones were used at all levels of command for critical communications across jurisdictions throughout the exercise." The apparent Baton Rouge public safety reliance on cellular technology would prove especially ineffective in response to an incident wherein commercial infrastructure were damaged or during a period of high commercial communications traffic (e.g., hurricane preparation and response).

Recommendations:

- Regularly test and exercise deployment of and procedures for regional communications interoperability resources (e.g., deactivation of gateways, use of talk groups) to improve proficiency
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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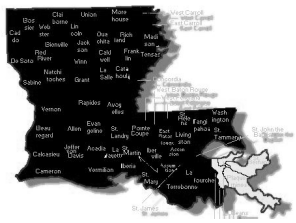
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

This UA use disparate VHF, UHF, and non-Project 25 (P25) 800 MHz systems. The UA is moving toward integrating its public safety system with the State of Louisiana's new 800 MHz P25 radio system; the UA is assessing how to best integrate the radio systems once the state has implemented its new system. Currently, the UA is planning to purchase subscriber units for many local agencies, assess P25 backward compatibility features for some local communities to interoperate, and apply National Public Safety Planning Advisory Committee frequencies for mutual aid.

New Orleans, LA

Tactical Interoperable Communications Scorecard



Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

Louisiana Urban Area (UA) Region 1 includes the City of New Orleans, Orleans Parish, and mutual aid partners Jefferson, St Bernard, and Plaquemines parishes.

Governance: *Advanced Implementation*

As a result of Hurricane Katrina, New Orleans has encountered an unheralded level of involvement from all levels of government in the oversight of the communications interoperability issue. Governance in the area is provided through the New Orleans Regional Communications Group, which provides recommendations to the Louisiana Region 1 Board of Directors. The group is inclusive of both state and federal representatives. Formal agreements are in place for use of the New Orleans Maritime Interoperable Committee [NOMIC] system, and additional agreements have been adopted by included agencies since Hurricane Katrina. Agreements have been reinforced by the adoption of a regional strategic plan, which is accepted by all included agencies. While fiscal priorities have been clearly articulated in the development of a regional shared system, a long-term funding strategy should be developed that looks beyond federal grants for the inevitable lifecycle costs of a new system.

Recommendations:

- Define governance structure in the Tactical Interoperable Communications Plan (TICP) to document the roles, responsibilities, and relationships of the governance groups (e.g., New Orleans Regional Communications Group)
- Reference all applicable agreements (e.g., memoranda of understanding, intergovernmental agreements) in the TICP and store them in an accessible format
- Develop a funding strategy for identifying sustainable funding sources (in addition to grants) to cover lifecycle and recurring costs to operate the area's interoperability assets

Standard Operating Procedures (SOP): *Established Implementation*

The New Orleans TICP is based on various existing policies and procedures (e.g., NOMIC gateways procedures), as well as lessons learned from reviews of SOPs after Hurricane Katrina. The UA has taken a number of steps to disseminate and begin training on the SOPs (e.g., distributed to all participating agencies and dispatch centers, distributed through TICP Workshop) among the participating organizations. Ongoing training and regular review of SOPs will be critical in addressing some gaps that were encountered during the validation exercise (e.g., gateway policies were not followed). The exercise evaluation indicated that some issues were encountered with the use of National Incident Management System (NIMS)/Incident Command System (ICS), including lack of access to Unified Command and a failure to update the pre-developed ICS 205 form. NIMS/ICS has been a focus of training more than the last year, and it is now mandated through city ordinance and executive order in all four parishes, which is commendable.

Recommendations:

- Develop training policies and requirements for inclusion in the TICP
- Continue to implement regional interoperability SOPs across all participating agencies
- Continue basic and advanced training and exercises on SOPs (include TICP implementation of communications unit) and for NIMS/ICS to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

New Orleans has indicated that regular testing and exercise is a critical priority to ensure familiarity with the use of new technology that is currently being implemented. This was demonstrated by the TICP validation exercise, which was held immediately after the partial activation of the City of New Orleans' newly acquired 700/800 megahertz (MHz) system. The exercise exposed some gaps, not only with use of the new system (the evaluators noted that some participants had only one hour training on this system), but also with use of the NOMIC fixed gateway system. As noted by the evaluators, the "NOMIC problem was caused by a lack of operational familiarity with gateway operation." The UA eventually incorporated both state and federal agencies in the validation exercise through the use of the National Public Safety Planning Advisory Committee (NPSPAC) channels and the NOMIC system. But, as noted by evaluators, "[T]he region should consider establishing radio caches to support outside agencies."

Recommendations:

- As the new 700/800 MHz shared system is implemented, continue to include local, state, and federal agencies (e.g., Louisiana State Police, National Guard, New Orleans Police Department) in multidiscipline multijurisdictional communications in future exercises and day-to-day use
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

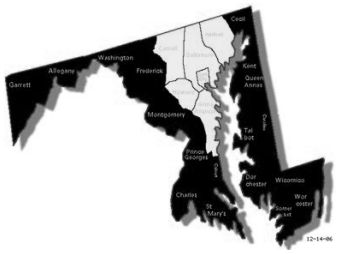
The City of New Orleans operates a MA-COM 800 MHz radio system with police, fire, emergency medical services, and city government. Since Hurricane Katrina, the agencies in the surrounding area typically operate on 800 MHz, Project 25 (P25) radios working on the Jefferson Parish Sheriff's Office radio system and have, at times, operated on the state 700 MHz radio system. The NOMIC system has the only regional gateway, an ACU-1000. Interoperability is achieved by use of the gateway, shared proprietary radio systems, and NPSPAC channels for mutual aid responses.

The UA is moving to a single, shared, dual-mode 700/800 MHz, fully P25-compliant, digital, trunked radio system that will eliminate the requirement for gateways or patches between multiple disparate radio systems within the area. The regional system will be connected to the state 700 MHz System. Events since Hurricane Katrina have indicated that gateways and patches cannot handle the volume of voice communications traffic at the tactical level during a major event. Gateways and patches may be able to handle limited command and control voice communications traffic at a more strategic level.

Limited financial resources preclude the purchase of radios for radio caches within the area. The UA must rely on grant funding for the purchase of most of its communications equipment and must ensure day to day operability before investing in additional interoperability requirements.

Baltimore, MD

Tactical Interoperable Communications Scorecard



Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Baltimore Urban Area (UA) includes Baltimore City, Annapolis City, Baltimore County, Anne Arundel County, Carroll County, Harford County, and Howard County.

Governance: *Established Implementation*

The Central Maryland Area Radio Communications (CMARC) committee includes local, state, federal, and private agencies (e.g., Maryland Department of Transportation, Mayor's Office, Maryland Institute for Emergency Medical Services Systems, Amtrak, and Aberdeen Proving Ground). Baltimore officials reported that published and active agreements (e.g., memoranda of understanding [MOU]) are in place to ensure communications interoperability, yet the Tactical Interoperable Communications Plan (TICP) does not include reference to such agreements. There is a mix of formal and informal partnerships among the UA's public safety organizations. Officials report that the Baltimore UA is currently developing a strategic plan for regional interoperable communications, but the entity responsible for strategic planning is not specified in the documentation (i.e., Baltimore Urban Area Working Group, CMARC, and the Region 20 Committee all appear to have responsibility for long-term planning). Organizations within the UA procure equipment and develop budgets with some consideration for interoperability needs, but an overarching regional funding strategy (e.g., for communications equipment, operations and maintenance) is not documented. The UA's senior leadership is actively involved in advocating for interoperable communications priorities and has demonstrated an understanding of its importance (e.g., Mayor's Office involvement in CMARC).

Recommendations:

- Clarify the roles, responsibilities, and relationships of the governance groups (e.g., CMARC, Baltimore Urban Area Working Group, Region 20 Committee) identified in TICP
- Reference all applicable agreements (e.g., MOUs) in the TICP, and store them in an accessible format
- Document and formalize agreements (e.g., signed MOUs with defined roles and responsibilities) among all participating agencies to support partnerships on regional interoperability
- Establish a regular review process to ensure that agreements remain current and relevant
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance that takes into account a long-term communications funding strategy (in addition to grants)
- Identify the organization that is responsible for regional strategic planning processes
- Clarify whether long-term (e.g., 3 to 5 years) sustainable funding exists (to include interoperable communications asset procurement) that is consistent with strategic planning efforts

Standard Operating Procedures (SOP): *Established Implementation*

Baltimore incorporated previously existing polices and procedures (e.g., 800 megahertz [MHz] shared system SOPs and mutual aid channels SOPs) into the TICP. The UA has taken steps to disseminate these SOPs to participating organizations (e.g., distributed directly to all included organizations and dispatch centers, distributed at the TICP Workshop). The UA should be commended for documenting a training

process in the TICP; however, the schedule is date specific and could benefit from defining a regular training interval. Although TICP validation exercise participants showed an understanding of SOPs, the Baltimore UA has been implementing National Incident Management System (NIMS)/Incident Command System (ICS) for only 6 months. The UA includes all first responders and additional public safety organizations in SOP training. During the exercise, the participants displayed a familiarity with ICS and unified command protocols and procedures (e.g., unified command established with law enforcement, fire, and hazardous materials agencies), but had specific difficulties with NIMS/ICS (e.g., Communications Unit Leader not actively involved in coordination of incident communications, ICS Form 205 not distributed). Although the TICP validation exercise and provided documentation show progress on SOP implementation, it should be noted that the TICP itself did not include specific references to or descriptions of regional SOPs that may be applied in incident response.

Recommendations:
- Expand the TICP to reference and document all regional interoperability SOPs
- Consider scheduling a regular review and update process of policies and procedures
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The UA frequently uses its means of available interoperable communications in day-to-day, task force, and mutual aid incidents (e.g., gateways, shared systems, shared channels, radio cache). Additionally, officials in the UA report proficiency in using interoperable equipment (e.g., common talk groups used for interoperable communications in the recent hazardous material spill on highway I-83). During the TICP validation exercise, participants successfully established interoperable communications within local and regional responders (e.g., Cecil, Baltimore, and Harford County law enforcement, fire, and emergency medical services). Due to the limited scope of the exercise; however, it appears that the level of state and federal participation (beyond Maryland State Highway Patrol) was insufficient to demonstrate communications interoperability across levels of government.

Recommendations:
- Consider including federal agencies (e.g., Aberdeen Proving Ground) in future exercises
- Consider adding interoperable communications as an evaluation component for all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Baltimore UA has five 800 MHz mobile relay frequencies for use as shared channels for all interoperable communications. They also have caches available which are compatible with 800 MHz frequencies. Six 800 MHz trunked systems are used for interoperable communications among the local police departments, fire departments, and emergency medical services as well as federal and state law enforcement. Six direct channels will be available for interoperability in the near future.

Boston, MA

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Boston Urban Area (UA), also referred to as the Metro Boston Homeland Security Region (MBHSR), includes nine jurisdictions: the cities of Boston, Cambridge, Chelsea, Everett, Quincy, Revere, and Somerville; and the towns of Brookline and Winthrop.

Governance: *Established Implementation*

The Boston UA is overseen by nine Jurisdictional Points of Contact, who provide guidance to an established Communications Interoperability Subcommittee (CIS). Partnerships among member agencies are provided through a combination of formal and informal agreements (e.g., memoranda of understanding); most of the agreements are among local first responder agencies. The Tactical Interoperable Communications Plan (TICP) Peer Review noted that "the panel was impressed with the strength of long-term interoperability shown through this planning process" and a regional 5-year strategic plan was included as an appendix to Boston's TICP. Year-to-year grant funds have provided for the majority of regional communications priorities, but the Boston UA has not developed long-term funding strategies (in addition to grants) for addressing lifecycle costs. Leaders in the UA (e.g., MBHSR and Massachusetts Executive Office of Public Safety are in full support of communications interoperability efforts) appear to recognize the importance of interoperability, and this executive involvement will be critical to ensuring the long-term success for interoperability in the UA.

Recommendations:

- Expand CIS membership to include public support disciplines, state, and federal agencies (e.g., hospitals, public health)
- Initiate the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding, and encourage regional funding alternatives and sources (in addition to grants)
- Continue to broaden and champion a governance structure that would more fully support regional communications interoperability
- Continue to involve senior government leadership on interoperability and encourage long-term regional funding plans
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met

Standard Operating Procedures (SOP): *Established Implementation*

The Boston UA incorporated existing SOPs into the development of its TICP, including procedures for the Boston Area Police Emergency Radio Network system and MetroFire. The TICP expands these policies to support multijurisdictional, multidiscipline communications interoperability throughout the area, and, as the TICP Peer Review noted, the Boston TICP "shows comprehensive cooperation and collaboration among the agencies in the region." The UA is beginning the process of disseminating the procedures to jurisdictions and agencies through TICP training. This training will help address some gaps identified during the TICP validation exercise (e.g., use of agency identifiers), particularly for emergency medical services (EMS)

agencies as reported by the UA. Boston officials indicated that they were in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS) and training was ongoing. The TICP validation exercise demonstrated some gaps with NIMS/ICS (e.g., establishment of a unified command), which ongoing training planned by the area should address.

Recommendations:

- Document and distribute regional interoperability SOPs (beyond the TICP) and put them into practice through regular training (e.g., in-service refreshers and basic training courses), exercises, and usage
- Identify the title and source documentation for existing SOPs in the TICP
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Boston UA uses its shared systems and gateways (including console patches) on a daily basis. Likewise, the use of a common channel plan was noted by the exercise evaluators as a best practice. The UA incorporated local first responder agencies in its TICP validation exercise and demonstrated successful use of each category of interoperable equipment during the TICP validation exercise (e.g., Everett and Cambridge site responders uses each others' shared channels on a routine basis and demonstrated proficiency with their use). Officials within the UA indicated during their exercise "hotwash" that EMS had some difficulty communicating. As a key component of the first response agencies, EMS capabilities for interoperable communications are a priority to address.

Recommendations:

- Consider adding interoperability as a component for all future exercises and day-to-day activities, as appropriate
- Consider including additional local, state, and federal agencies (e.g., public health) in future exercises and day-to-day use

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Interoperability in the area is achieved by exchanging of radios, sharing of channels, gateway solutions, and shared systems. Five radio caches are available that contain radios in the very high frequency (VHF), ultra high frequency (UHF), and 800 megahertz (MHz) bands. Additionally, a regional subscriber unit channel plan is in place—radios are programmed with a common set of shared channels and functions including one channel for each fire department and police department in the area. Shared channels are available for use in each of the three prevalent frequency bands (i.e., VHF, UHF, and 800 MHz). Six mobile gateway devices (either vehicle or trailer mounted) are available for use—two owned by Boston EMS and one each by Chelsea, the Massachusetts State Police, the Massachusetts Bay Transportation Authority, and the Massachusetts Department of Fire Services. There are no fixed gateways in the UA. The MBHSR has a 5-year strategic plan in place to ensure that the communications interoperable capabilities are continually being improved. One plan for the future in the UA is to migrate all shared systems to the UHF frequency band.

Detroit, MI

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Detroit Urban Area (UA) includes the City of Detroit and the Counties of Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne.

Governance: *Intermediate Implementation*

The Southeast Michigan regional Interoperability Communications Committee was recently established to address specific communications interoperability in the UA. After initially coming together to develop the Tactical Interoperable Communications Plan (TICP), the group was formalized in October 2006 and began regularly meeting in November 2006. The UA is making an effort to prioritize interoperable communications (e.g., developing and maintaining budgets and procuring communications equipment with consideration for interoperability) and has formal partnerships among organizations, but lacks formal, documented interoperability agreements outside of the TICP. Beyond the UA's efforts in creating the TICP, the documentation does not indicate that a regional strategic plan focused on interoperable communications exists except in the early planning stages. Funding for interoperable communications is a high priority locally and organizations make their procurement decisions with consideration for regionwide interoperability. However, the majority of funding is based on federal grants and therefore does not address recurring costs for equipment operations, maintenance, and improvements. The Communications Committee must have the ability to work with high-level leadership who would be able to provide continued fiscal and political support for interoperable communications throughout the UA.

Recommendations:

- Continue to meet regularly, include all agencies participating in public safety efforts in the UA, and define roles and responsibilities
- Document and formalize the necessary agreements (e.g., memoranda of understanding), including local, state, and federal partnerships, to achieve regional communications interoperability goals
- Develop a strategic plan with long-term interoperability goals (beyond the operational focus of the TICP), with participant approval, adoption, and acceptance
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Initiate the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding
- Consider the direct involvement of a high-level official, with political and fiscal authority, to specifically advocate for and focus on communications interoperability issues; consider establishing a direct line of communication among local and state agencies to promote consensus advocacy

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Detroit UA incorporated several pre-existing individual county SOPs into the regional TICP. In addition to using existing county SOPs, the UA (through the TICP process) attempted to develop more comprehensive policies to address regional communications interoperability issues. However, the TICP Peer Review voiced a concern that the TICP's focus was "primarily on local and individual systems' operational

procedures and not on regional authority or usage prioritization" and recommended that "[t]he site should consider moving towards consolidation of [regional] procedures." The Detroit UA has not yet distributed the newly created regional SOPs to all public safety agencies in the UA, although they did participate in a TICP Workshop in preparation for their validation exercise. The Detroit UA is in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS), which implies that the UA is still in the earlier stages of implementing NIMS/ICS policies and procedures.

Recommendations:

- Review and update SOPs to ensure consistency with regional and statewide interoperability planning and implementation efforts
- Develop, disseminate, and train on regional communications interoperability SOPs (beyond the TICP Implementation Workshop)
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

Agencies within the Detroit UA were able to achieve communications interoperability adequately within the area through their existing communications solutions (e.g., radio cache, shared system). Although the Detroit officials indicated that interoperable communications equipment resources (e.g., radio cache, gateways) were used infrequently, the TICP validation exercise and After Action Report noted that users possessed the knowledge and skills to effectively employ the communications interoperability equipment. During the TICP validation exercise, the UA encountered repeated problems attempting to use gateways (e.g., gateways could not be activated at Wayne County Emergency Operations Center or the Mobile Command Center). Additional steps, including regular training and exercise on available resources (such as gateways), would be beneficial in achieving multijurisdictional communications interoperability.

Recommendations:

- Regularly test and exercise deployment of regional interoperability resources to improve proficiency (e.g., gateways)
- Involve additional local, state, and federal agencies in training and exercises
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Detroit UA has multiple very high frequency (VHF), ultra high frequency (UHF), and 800 megahertz (MHz) radio systems operating in analog and digital modes. Communications interoperability is achieved through cached radios, enabling mobile and fixed gateways (including Codespear Smart Msg equipment) and shared channels, including those provided by the National Public Safety Policy Advisory Committee (NPSPAC) and the Michigan Public Safety Communication System (MPSCS). Various agencies have access to the MPSCS 800 MHz digital trunked radios for command and control during multi-agency incidents. The UA will use the shared channels on MPSCS and NPSPAC and other VHF and UHF mutual aid channels and gateways to increase interoperability.

Twin Cities, MN

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

In Minnesota, the "Twin Cities" have been designated as the state's Urban Area (UA). The Twin Cities are St. Paul and Minneapolis, but the UA has been designated to include all the cities, townships, and political subdivisions within and including the counties of Dakota, Hennepin, and Ramsey.

Governance: *Advanced Implementation*

The Urban Area Administrative Council oversees the Communications Subcommittee, which includes local, state, and federal representatives (e.g., Metropolitan Council, Department of Transportation, National Guard) and proactively recruits involvement by additional public safety organizations. The Twin Cities have a strategic plan for interoperable communications that has been accepted by the participating organizations. Interoperable communications funding requirements are defined in the regional strategic plan, and through a variety of local resources (e.g., 9-1-1 surcharge and seatbelt fines), organizations within the Twin Cities UA procure equipment and develop budgets according to these strategic goals. The identification of interoperable communications goals and this diversification of funding sources to support them demonstrates strong commitment to sustainable interoperability. The UA's leadership support these governance efforts and serves as an interoperability advocate to ensure long-term political and fiscal support for continued regional interoperability success.

Recommendation:

- Clarify that a process exists to review agreements (e.g., memoranda of understanding) and the strategic plan on a regular basis or after significant events or upgrades to ensure alignment with current interoperable communications needs

Standard Operating Procedures (SOP): *Advanced Implementation*

The Twin Cities incorporated existing interoperable communications SOPs (regional policies and procedures were created in 1986) in creating the Tactical Interoperable Communications Plan (TICP). Since these SOPs were already well established and used frequently, the public safety agencies in the UA were well positioned to adopt the TICP. In addition to widely disseminating these SOPs to the agencies in UA, the area is planning a large-scale Communications Center Manager training event. The incorporation of legacy interoperable communications SOPs into the area's current operating procedures and the significant level of training on the SOPs for first responders in the area is commendable and should be considered a best practice. Additionally, according to evaluators, "participants as a whole demonstrated a fairly solid understanding of the SOPs outlined in the TICP" during the exercise. The area implemented National Incident Management System (NIMS)/Incident Command System (ICS) more than 1 year ago, which indicates that the agencies have spent some time aligning their prior command and control procedures to be NIMS compliant. Although the participants experienced a few minor problems with command and control communications (e.g., naming conventions, initial unified command announcement), they demonstrated familiarity with the processes as noted in their exercise evaluations. Officials in the area reported that they

are committed to continuing NIMS/ICS training and further implementation of the interoperable communications processes.

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* ●

The Twin Cities report frequent use of their available means of interoperable communications (e.g., cache radios, gateways, shared channels, shared systems). During the TICP validation exercise, participants were able to successfully establish interoperable communications among first responders and regional responders (e.g., Mall of America Security, Minnesota Department of Public Safety). They demonstrated proficiency in use of cache radios, gateways, shared channels, and shared systems. As noted by evaluators during the exercise, the "Twin Cities demonstrated a broad and largely effective use of interagency communications capabilities." As further illustration of the UA's demonstrated familiarity with communications interoperability solutions, in a October 2006 real-world hazardous materials incident in the UA, over 100 local, state, and federal response agencies were able to coordinate efforts to an impressive degree.

Recommendation:

- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

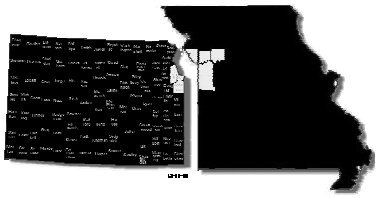
Technology Overview

The City of Minneapolis and Hennepin County agencies currently operate on the Allied Radio Matrix for Emergency Response (ARMER) systems. The ARMER systems include an 800 megahertz (MHz) digital trunked system, a very high frequency (VHF) system, and an ultra high frequency (UHF) system. The City of St. Paul, Dakota County, and Ramsey County operate on various 800 MHz, VHF, and UHF systems. Interoperability is achieved using shared radios, gateways, console patches, and shared channels (e.g., ARMER 800 MHz, VHF, UHF, and National Public Safety Planning Advisory Committee 800 MHz frequencies).

Ramsey County includes the City of St. Paul and is currently migrating to the ARMER radio system. Dakota County will migrate to the ARMER system in 2007. In addition, the metropolitan area, consisting of nine counties and including the three UA counties, is developing a 700 MHz wideband data interoperability solution.

Kansas City, MO

Tactical Interoperable Communications Scorecard



Summary

Governance: ***Established Implementation***

Standard Operating Procedures: ***Established Implementation***

Usage: ***Established Implementation***

The Kansas City Urban Area (UA) includes 8 counties and more than 100 cities. The eight counties are Jackson, Platte, Cass, Clay, and Ray in Missouri; and Johnson, Leavenworth, and Wyandotte in Kansas.

Governance: *Established Implementation*

Faced with disparate infrastructure within the area and across the state border, the Kansas City UA has developed a strong governance structure to address communications interoperability challenges. The Regional Interoperability Committee (RIC) provides advice and guidance to the Public Safety Communications Board (PSCB), which has responsibility for coordinating communications interoperability. While the PSCB is a formalized group, interoperability agreements among included agencies are generally informal. The UA indicated that memoranda of understanding (MOU) have been developed and distributed, but some agencies have not yet signed them. The Kansas City UA five-year strategic plan that includes strategic interoperable communications efforts has been accepted by the Regional Homeland Security Coordinating Committee representing the region's first responder agencies, and a process has been established to annually review the plan. Kansas City officials indicated that they are working together to pursue regional funding, specifically for the implementation of the regional interoperable communications plan including regional voice and data communications. The region has designated portions of Urban Area Security Initiative and other federal grants to complete the first phase of the Regional Area Multi-Band Integrated System (RAMBIS), which will link the UA's three communications bands. The documentation did not directly indicate whether communications interoperability efforts were driven by available grants or a long-term funding strategy that addresses lifecycle costs. Although elected officials, as well as public safety executives, are aware of interoperability issues, the UA needs to take proactive steps to ensure that interoperability continues to be a political and fiscal priority.

Recommendations:

- Ensure broader participation (e.g., involve federal and tribal agencies) in the decision-making group
- Document, formalize, and put into practice the necessary interoperability agreements (e.g., MOUs), and reference all applicable agreements in the Tactical Interoperable Communications Plan (TICP) and store them in an accessible format
- Ensure the participation of all possible regional responders in the strategic plan
- Align local, state, and federal strategic planning efforts to ensure that regional interoperability needs are met
- Incorporate regional interoperability funding strategy into strategic plan, such as considering funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts
- Motivate broader acceptance of communications interoperability as both a political and fiscal priority for the UA and at the state level

Standard Operating Procedures (SOP): *Established Implementation*

The Kansas City UA's TICP is built on existing SOPs, including discipline-specific mutual aid channel procedures that have been in place for a number of years. Kansas City officials indicated that the TICP provided a regionwide focus on communications interoperability SOPs. Since the SOPs were developed and finalized shortly before the TICP validation exercise, the UA has begun the process of disseminating these policies to the included agencies (e.g., distribute SOPs to dispatch centers, make gateway SOPs available with gateways). While some issues with SOPs (e.g.,

did not include SOPs of major city agencies for mutual aid responses in their home area) were raised by evaluators during the TICP validation exercise, the use of the interoperable equipment was largely successful. Kansas City officials indicated that they were in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS). The use of NIMS for command and control, including the use of the Communications Unit Leader, was effective at the sites where it was required during the exercise.

Recommendations:

- Continue to standardize SOPs regionwide (e.g., activation procedures)
- Disseminate the SOPs (beyond the TICP) to participating agencies
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Kansas City UA uses a number of different shared systems for multi-agency communications interoperability. Communications across these systems is achieved through the regular use of gateways and state and federal mutual aid channels. Successful tactical interoperable communications was observed among responders at each of the three TICP validation exercise sites. Some difficulties were encountered with the use of communications interoperability equipment, but in each case, personnel were able to overcome these problems. For example, when problems occurred in activating a gateway at one site, agencies used radio caches to achieve communications interoperability. In regards to shared channels, agencies were able to demonstrate familiarity with the use of mutual aid channels; however the After Action Report noted that "inconsistent naming conventions caused some confusion on the part of some of the regional first responders." Building on the TICP validation exercise, future tests should consider testing users outside of their existing coverage area as well as bringing in additional state, federal, and support organizations.

Recommendations:

- Involve state and federal agencies in training and exercises
- Plan and train for a regionwide event that will involve disparate systems with users working outside of their coverage area
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Kansas City UA has various 800 megahertz (MHz), 700 MHz, very high frequency (VHF) and ultra high frequency (UHF) radio communications systems throughout the UA. Communications interoperability is achieved through cached radios, gateways, shared channels, and shared systems. The Kansas City UA is planning to establish a multiband (800 MHz, 700 MHz, VHF, and UHF) regionwide radio communications system, called RAMBIS, to provide communications interoperability. The communications system's infrastructure will operate in simulcast mode. The default configuration will allow the calling channels for 800 MHz, VHF, and UHF to be interconnected and act as crossband repeaters. Similarly, in the default configuration, channels designated TAC1 and TAC2 for all bands will be interconnected.

St. Louis, MO

Tactical Interoperable Communications Scorecard

Summary

Governance: ***Intermediate Implementation***

Standard Operating Procedures: ***Established Implementation***

Usage: ***Intermediate Implementation***

The St. Louis Urban Area (UA) includes the following jurisdictions in Missouri: City and County of Saint Louis, Franklin County, Jefferson County, and Saint Charles County. The UA also includes the jurisdictions in Illinois: Saint Clair County, Madison County, and Monroe County.

Governance: *Intermediate Implementation*

The St. Louis Area regional Response System (STARRS) was formed before the Tactical Interoperable Communications Plan (TICP) process and includes state and federal agencies; it also works to actively recruit new members throughout the UA. While STARRS appears well established with four subcommittees (technical, channel programming, training and exercises, and planning/TICP), steps should be taken to formalize the group's authority and influence through an official charter. Currently, individual organizations develop and maintain their own budgets and procure communications equipment based on agency-specific needs for day-to-day communications interoperability requirements. It appears that the jurisdictions may be jointly funding some interoperability requirements (e.g., specialty teams, task force), but the documentation does not indicate whether the UA is working toward a long-term funding plan based on regional interoperable communications needs. The majority of the current funding is through grants. The UA is in the process of developing an interoperability strategic plan (beyond the operational focus of the TICP), but it is not yet completed. Although the specific documentation put forth in the TICP process did not reference a specific working partnership across the entire UA (e.g., Missouri and Illinois), officials in the UA report that a healthy, cooperative environment is in place to address multistate planning.

Recommendations:

- Consider publishing a charter for the STARRS group
- Review agreements (e.g., memoranda of understanding) every 3 to 5 years and after significant events or system upgrades
- Encourage planning and development of a strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance; align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Initiate the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding
- Consider the direct involvement of a high-level official (e.g., mayor, city council member) with political and fiscal authority to specifically focus on interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The St. Louis UA has communications equipment policies and procedures in place that were developed by the State Interoperability Executive Committee, as well as the Department of Justice (DoJ) 25 Cities project.

These policies and procedures were used as the basis to create the TICP. Although the St. Louis UA distributed SOPs during its TICP Implementation Workshop, further steps should be taken to disseminate the regional communications interoperability policies and procedures to all public safety agencies. The St. Louis UA has been practicing the interoperable communications aspects required by the National Incident Management System (NIMS)/Incident Command System (ICS) for more than 1 year; however, the agencies experienced some command and control problems during the TICP validation exercise (e.g., multiple command posts, improperly identified Communications Unit Leader).

Recommendations:

- Distribute regional communications interoperability SOPs (beyond the TICP Implementation Workshop) to all stakeholders and ensure that SOPs are consistent with regional, statewide, and interstate communications interoperability planning efforts
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The St. Louis UA appears to be capable of employing interoperable communications capabilities in the area (e.g., radio caches, shared channels, gateways, shared systems). According to the After Action Report, the UA's "local and regional first responders on the scene were able to communicate effectively." During the TICP validation exercise, however, there were difficulties in executing some of these capabilities. For example, the participants misused shared channels assigned for other functions and the incident command resorted to using cellular telephones to communicate. Additionally, the participants were not able to establish a gateway patch because of an audio level issue that was not able to be resolved.

Recommendations:

- Expand methods of interoperability for emergency communications (to include more than commercial services such as cellular telephones)
- Regularly test and exercise the deployment of regional communications interoperability resources to improve proficiency of operations (e.g., radio cache, shared channels, mobile gateway)
- Consider adding communications interoperability as a component of all future exercises

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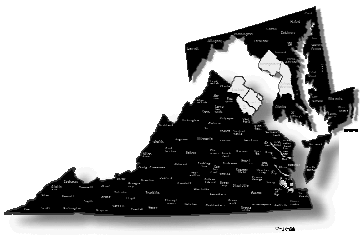
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The St. Louis UA is served by a mix of conventional very high frequency (VHF), ultra high frequency, and 800 megahertz (MHz) trunked systems. Approximately 80 percent of the users in the public safety sector operate in the VHF band. The County of St. Louis uses a conventional VHF system while the City of St. Louis operates an 800 MHz trunked system. St. Clair County is currently transitioning to a countywide Project 25-compliant, 800 MHz, trunked system. The most commonly used method of interoperability is sharing channels in the VHF band; however, some agencies use console patches. Three interoperable communications initiatives are currently underway in the St. Louis UA. The first is the deployment of a "network switch" in the city of St. Louis to connect disparate systems via gateways. The second initiative is to develop a high-capacity microwave backbone that will link all of the UA counties. The third initiative, under the DoJ 25 Cities project, is to create a permanent cross-banded system among shared VHF, UHF, and National Public Safety Policy Advisory Committee channels.

National Capital Region

Tactical Interoperable Communications Scorecard



Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The National Capital Region (NCR) Urban Area (UA) includes the District of Columbia. It also includes the Virginia city of Alexandria; and the Virginia counties of Arlington, Fairfax, Loudoun, and Prince William; and the Maryland counties of Montgomery and Prince George's.

Governance: *Advanced Implementation*

Interoperability in the NCR UA is overseen by a hierarchy of formalized committees, headed by the Senior Policy Group at the executive level. The Washington Council of Governments' Joint Police and Fire Communications Committee addresses specific technical and operational policies. Agreements among agencies are largely in place and are being compiled, and steps should be taken to ensure that these agreements are regularly reviewed. An established strategic plan for voice communications was developed and is currently being updated to incorporate wireless data communications, as well as to include additional state and federal agencies. The NCR UA has demonstrated success in using funding to address regional communications interoperability needs, most notably through the joint acquisition and implementation of a cache of 1,250 NCR radios. Given the sustained success of the UA in working together to attain interoperability assets through cooperated efforts, the area should consider the merits of documenting a regionwide funding strategy that comprehensively addresses regional interoperability fiscal needs for the next 3 to 5 years.

Recommendations:

- Investigate means to more formally involve federal agencies (in addition to communications working group membership) and define their roles and responsibilities
- Establish and/or identify the UA's systematic process to develop and review agreements (e.g., usage agreements, memoranda of understanding) at least every 3 to 5 years and after significant events or upgrades
- Build on the UA's success to support statewide interoperability throughout Virginia and Maryland

Standard Operating Procedures (SOP): *Advanced Implementation*

The policies for use of the NCR UA shared systems, as well as the Metropolitan Interoperability Radio System (MIRS) fixed gateway system and NCR radio cache, are long established and were effectively documented in Section 3 of the Tactical Interoperable Communications Plan (TICP). The UA used the TICP as an opportunity to enhance some of these policies and to disseminate them to all included agencies. The UA also undertook an aggressive effort to document communications assets in the area through the use of the CASM tool. National Incident Management System (NIMS)/Incident Command System (ICS) has been in place for more than 1 year and is proficiently used; particularly by the fire community. NIMS/ICS was effectively used during the TICP validation exercise, including a successful deployment of the Communications Unit and Communications Unit Leader (COML). The COML was able to efficiently deploy multi-agency resources and coordinated by radio and face-to-face with command and general staff.

The area is committed to integrating the COML position into its response structure and officials have indicated that they hope to be actively involved in the development of this training curriculum.

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* ●

The NCR UA conducts multidiscipline and multijurisdictional communications across the area on a daily basis. The well-established use of their shared systems by primary first responders as well as proficiency of using MIRS and the regional radio cache for outside agencies was seamlessly demonstrated during the TICP validation exercise. The UA specifically verified that its personnel could achieve interoperable communications using fixed gateways with responders from Prince George's County, which is the only county not currently using a 800 megahertz (MHz) system. Communication was also achieved with multiple state and federal agencies.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises and include agencies outside of the defined UA

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The NCR UA has 25 separate communications systems in the area servicing public safety agencies in the District of Columbia, northern Virginia, and Maryland. The District of Columbia Fire and Emergency Medical Services, all of the suburban northern Virginia, and Maryland public safety agencies (except those in Prince George's County, Maryland) are using separate but interconnected 800 MHz Motorola SmartZone™ systems. Regional interoperability is primarily achieved through the use of shared systems, fixed gateways, shared channels, talk groups, and cached radios. The fixed gateways interconnect the NCR Police Mutual Aid Radio System, the Fire Mutual Aid Radio System, and National Public Safety Policy Advisory Committee channels (known locally as the regional Interoperability Network System). Mobile gateways are only used on an incident-specific basis.

The NCR UA anticipates migrating existing radio systems to a Project 25 (P25)-compliant system in the near future. Alexandria and Arlington, Virginia, are expected to upgrade their existing systems to become P25-compliant, and a new P25-compliant radio network will be deployed in Prince George's County, Maryland. Other jurisdictions in the NCR UA will have to make similar upgrades in order to ensure effective communications are maintained throughout the area.

In the long-term, the NCR UA is considering expanding to include the cities of Baltimore, Maryland, and Richmond, Virginia. The UA expansion will require extending the capabilities of regional radio systems and interoperability capabilities to these new areas.

Omaha, NE

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The Omaha Urban Area (UA) includes Douglas, Sarpy, and Washington counties located in eastern Nebraska.

Governance: *Intermediate Implementation*

The Omaha UA appears to work very well together, although there are few formal and established processes. Agreements consist of a combination of formal and informal partnerships (e.g., Douglas County has an agreement with Washington County and its public utilities to use their system), and the governing body, as referenced in the Tactical Interoperable Communications Plan (TICP), does not appear to have formal state or federal participation. The TICP process has pointed out the need to have a strategic plan in place, and Omaha officials have begun this development process over the last year and a half. Regional leaders have made communications interoperability a funding priority by using general funds and bonds for equipment and operations and maintenance activities. Additionally, the UA maintains budgets and procures communications interoperability equipment taking interoperability across the tri-county area into consideration. The UA is encouraged to begin considering long-term funding strategies beyond the current bond initiative in order to achieve the area's interoperability objectives.

Recommendations:

- Formalize state (i.e., Nebraska Emergency Management Agency) and federal participation (e.g., Federal Bureau of Investigation [FBI], Department of Defense) within the UA's communications group(s)
- Continue to meet regularly and proactively recruit new participants from additional agencies representing various levels of government and public support disciplines
- Identify all necessary participants and establish regional agreements (e.g., memoranda of understanding), as appropriate
- Encourage full development of the strategic plan and obtain acceptance from all participants
- Consider enhancing regional communications interoperability funding strategy to include long-term (e.g., 3 to 5 years) funding sources (in addition to bonds and grants)

Standard Operating Procedures (SOP): *Intermediate Implementation*

The TICP provides the first regional communication SOPs for the Omaha UA and is built on the prior procedures that existed among some of the individual agencies. Although most agencies in the UA were represented in the TICP, few steps appear to have been taken to disseminate these policies. Although the shared system and console patch infrastructure has simplified interoperability policies (particularly if Sarpy joins the Douglas system), formal SOPs are still critical to successfully establish interoperable communications. The Omaha UA did not consistently demonstrate SOPs during the TICP validation exercise (e.g., deactivation of gateway patches did not follow TICP procedures). The Omaha UA is in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS). In the on-going efforts to integrate these command policies, Omaha UA had some problems with

NIMS/ICS during the TICP validation exercise (e.g., Incident Commander was not universally communicated to exercise participants, Communications Unit Leader was not announced over the radio).

Recommendations:

- Update the TICP to include After Action Report recommendations and to address SOP issues (i.e., activation/deactivation of gateways, radio cache tracking procedures, and shared channel usage)
- Continue to establish and implement formal SOPs within the UA (outside of Douglas County) and distribute appropriately
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Interoperability solutions (e.g., shared channels, shared systems and gateways [console patches]) are used on a regular basis in the UA for drug task forces and mutual aid events. Omaha officials indicated that joint drug task forces occur among Sarpy, Douglas, and Washington counties, and shared channels are used to effectively provide interoperable communications. In carrying out the TICP validation exercise, the Omaha UA showed effective command and line-level communications across multiple local jurisdictions and disciplines (e.g., the Mobile Command Center successfully communicated using shared channels to both Washington and Sarpy Counties). However, some technical and procedural issues were encountered with multiple categories of interoperable equipment (e.g., radio labeling and programming issues that did not match the fleet map) that did not allow the area to seamlessly use all applicable types of interoperable communications assets. While the exercise met the stated requirements, it did not provide the opportunity to demonstrate interoperable communications with state and federal agencies (e.g., Nebraska Emergency Management Agency, FBI) in the area. The UA is encouraged to build on its local exercise success by further integrating state, federal and support agencies in future events.

Recommendations:

- Recommend additional training on how to use radios and available channels
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Omaha UA has two 800 megahertz trunked radio systems with 30 shared talk groups available for all public safety agencies. All public safety agencies in the UA are on these two systems. There are five conventional interoperable talk groups that are shared between the two systems. Sarpy County has its own system, while Washington County is using the Douglas County System, which meets the Project 25 (P25) compliance. There are multiple console patches and Raven fixed gateways for interoperability with ultra high frequency and both high- and low-band very high frequency systems.

Regional communications systems are the accepted method of interoperability in this UA. The Douglas County P25 system is likely to be expanded into Pottawattamie County, Iowa. Sarpy County is planning to obtain funding to join the Douglas County P25 System or purchase its own communications system. The Douglas County System is upgrading to Motorola's new 7.x technology that will support integrated voice and data communications.

Las Vegas, NV

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Established Implementation*

The Las Vegas Urban Area (UA) includes the City of Las Vegas, as well as jurisdictions within Clark County.

Governance: *Advanced Implementation*

The regional Communications Steering Committee has been in place for 20 years and has taken key steps toward communications interoperability since its formation (e.g., established processes for developing and formalizing memoranda of understanding). The Committee supports the Urban Area Working Group on communications issues, and oversaw the development of the Tactical Interoperable Communications Plan (TICP). There are a number of formal agreements among member agencies, and the area has been very effective in proactively including public support discipline, state, and federal agencies in the governance process (e.g., Committee recruitment from hotel and casino security chiefs association, area hospitals, school districts, bus drivers). The Las Vegas UA has an established strategic plan for interoperability that has been accepted by all necessary agencies and is regularly reviewed. The Las Vegas UA indicated that budgets were developed based on regional strategic goals and used a variety of funding sources, including operating accounts, subscriptions, and capital funds, as well as grants. Regional leaders, including the chairman of the Urban Area Working Group, have made interoperable communications a priority and are actively engaged in all aspects of interoperability.

Recommendations:

- Reference existing agreements in future communications plans (e.g., updated TICP or regional communications plans)
- Align local and state strategic planning efforts to ensure that region wide interoperability needs are met

Standard Operating Procedures (SOP): *Advanced Implementation*

The Las Vegas UA has successfully developed and implemented local communications interoperability procedures prior to the development of the TICP (e.g., through Southern Nevada Area Communications Council [SNACC] efforts), and the SOPs have been fully incorporated into the TICP. The UA is also developing further regionwide communications interoperability SOPs to include agencies beyond first responders and communications interoperability assets not captured initially; and plans to incorporate these additional SOPs into an updated TICP. The Las Vegas UA should be commended for taking aggressive steps in disseminating these policies (e.g., providing to all agencies and dispatch center; storing applicable SOPs with radio caches and gateways). The TICP validation exercise demonstrated the successful use of all applicable communications interoperability SOPs developed for the UA (e.g., the activation and deactivation procedures for radio caches were accurately followed). The National Incident Management System (NIMS)/Incident Command System (ICS) has been implemented in the Las Vegas UA SOPs for more than a decade, and the successful use of these procedures (including the Communications Unit Leader [COML] position) were also fully demonstrated during the Las Vegas TICP validation exercise (e.g., a COML was designated and announced to all relevant personnel).

Recommendations:

- Update the TICP to include all available assets for interoperability (e.g., Federal Bureau of Investigation and University of Nevada Las Vegas gateways)
- Ensure that regional interoperability SOPs (beyond the TICP) are fully developed through a comprehensive interoperability plan beyond first responders (e.g., public health, hospitals)
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Las Vegas UA regularly uses three major shared systems to conduct multi-agency communications. Because these systems operate on disparate bands and technologies, shared channels and a fixed gateway are used on a daily basis to address multijurisdictional needs. Despite this regular use of interoperable solutions and effective demonstration of interoperable communications, some problems were encountered during the TICP validation exercise (e.g., the use of the command channel for tactical operations units; no gateway use demonstrated). These problems may have been a result of the limited scope of the TICP validation exercise, which did not necessitate the use of a gateway devise, despite the fact that this is a standard interoperability tool used in the UA.

Recommendations:

- Include gateways in future training and exercises to demonstrate proficiency
- Consider including additional state and federal agencies (e.g., Department of Energy) in future exercises and day-to-day use
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Las Vegas UA consists of three primary communication systems that most of the agencies in the UA use. The SNACC 800 megahertz (MHz) trunked system operates throughout Clark County supporting most of the city and county agencies. The Las Vegas Police Department (LVPD) uses a conventional very high frequency (VHF) system called the METRO system. The METRO system uses crossband repeaters to link mutual aid channels VHF VTAC to 800 MHz ITAC and VHF VCALL to 800 MHz ICALL within the UA. State agencies and Nevada Power primarily use an 800 MHz M/A-COM Enhanced Digital Access Communications System ProVoice system that serves the majority of the state. There are also separate systems that cities such as North Las Vegas and Boulder Junction primarily use.

The LVPD recently awarded a contract to M/A-COM to deploy a 700/800 MHz OpenSky communication system for support of the agency's voice and data needs. Because the statewide system is also a M/A-COM product, the LVPD will be able to share communications interoperability with state users.

Jersey City, NJ

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Jersey City/Newark Urban Area (UA) is a combination of two formerly separate UAs—Jersey City UA and Newark UA. The newly combined UA includes the cities of Newark and Jersey City, and the counties of Essex, Hudson, Bergen, Morris, Passaic, and Union.

Governance: *Established Implementation*

The Jersey City/Newark UA has a strong governance structure closely tied to the State of New Jersey. Communications in the UA are governed by the Urban Area Security Initiative (UASI) Interoperability Subcommittee, which is a formalized group within the UASI structure. The UA has formalized agreements across the first responder agencies, with every agency signing a memorandum of understanding for regionwide communications interoperability. In addition, agencies such as the Port Authority of New York and New Jersey, the New Jersey Department of Health, and the U.S. Coast Guard have been included in the Interoperability Subcommittee and agreement process. The state legislature mandated strategic interoperability planning 3 years ago, although no plan has been adopted yet by participating agencies. The UA obtains the majority of their funding from federal grants. Currently, individual organizations develop and maintain their budgets and procure communications equipment with consideration for interoperability throughout the UA. However, the UA should encourage the participating organizations to develop a long-term strategy to determine or identify diversified or sustained funding that aligns with the regional strategic plan, which is under development. The Jersey City/Newark UA receives support from their leadership to obtain funding (e.g., executive committee allocated funding when the UA needed to address problems with in-building coverage).

Recommendations:

- Continue to be proactive in education efforts across stakeholders (e.g., distribute information through speaking engagements, distribute information pamphlets on communications interoperability)
- Encourage all participating agencies to fully adopt the strategic plan
- Encourage the development of a regional interoperability funding strategy, including long-term (e.g., 3 to 5 years) funding sources that can help leverage costs across jurisdictions (in addition to grants)

Standard Operating Procedures (SOP): *Established Implementation*

The Tactical Interoperable Communications Plan (TICP) incorporated interoperability policies and procedures that had been in place for two and a half years, and on which there was regular training and usage. Most agencies participated in the TICP process, and since that time, further steps have been taken to disseminate the regional SOPs (e.g., distributed to included organizations and dispatch centers, made gateway SOPs available with gateways). The use of equipment SOPs was successfully demonstrated during the TICP validation exercise, and as noted in the After Action Report "[t]he street force demonstrated superior understanding of the TICP, only a week after its formal approval and implementation." The exercise did expose minor gaps (e.g., setting up a unified command that didn't include all of the participating agencies) in the use of the National Incident Management System (NIMS)/Incident Command System (ICS),

which has been in place in the UA for less than 1 year. The UA does, however, exclusively use plain language as required in NIMS/ICS.

Recommendations:
- Continue awareness and understanding of policies and procedures across all agencies
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Jersey City/Newark UA uses its shared ultra high frequency (UHF) channels on a weekly basis to provide communications interoperability and regularly deploys and uses radio caches and gateways. The Jersey City/Newark UA did well with the use of available communications interoperability equipment during the TICP validation exercise. Some minor training issues were encountered during the exercise; for example the traffic units were discussing road closures on the same shared channel that the COML was performing a radio check until a dispatcher intervened. Overall, evaluators of the exercise noted that "users were proficient with the use of UTAC4, ITAC5, and OEM2 as shared channels" and "the gateway technician was proficient with the setup and use of the system."

Recommendations:
- Recommend additional training on how to use radios and available channels
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Jersey City Police Department operates a radio system with five UHF conventional channels. The Jersey City Fire Department radio system uses two UHF conventional channels. The Newark Police Department uses a conventional UHF radio system, and the Newark Fire Department uses a conventional very high frequency (VHF) radio system. Newark Emergency Medical Services (EMS) is also operating a radio system on the VHF band. All agencies can use the Essex County Sheriff's Radio System (UHF/VHF) for interoperability. All agencies also have access to the New Jersey Interoperability Communications System, which has eight 800 megahertz channels and nine VHF channels.

Jersey City is in the process of implementing a UHF trunked radio system for police, fire, and EMS. Estimated completion date is the end of calendar year 2007. In Newark, there is the possibility of implementing an Essex County trunked system to cover all agencies in the county, if funding issues can be resolved.

Newark, NJ

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Jersey City/Newark Urban Area (UA) is a combination of two formerly separate UAs—Jersey City UA and Newark UA. The newly combined UA includes the cities of Newark and Jersey City, and the counties of Essex, Hudson, Bergen, Morris, Passaic, and Union.

Governance: *Established Implementation*

The Jersey City/Newark UA has a strong governance structure closely tied to the State of New Jersey. Communications in the UA are governed by the Urban Area Security Initiative (UASI) Interoperability Subcommittee, which is a formalized group within the UASI structure. The UA has formalized agreements across the first responder agencies, with every agency signing a memorandum of understanding for regionwide communications interoperability. In addition, agencies such as the Port Authority of New York and New Jersey, the New Jersey Department of Health, and the U.S. Coast Guard have been included in the Interoperability Subcommittee and agreement process. The state legislature mandated strategic interoperability planning 3 years ago, although no plan has been adopted yet by participating agencies. The UA obtains the majority of their funding from federal grants. Currently, individual organizations develop and maintain their budgets and procure communications equipment with consideration for interoperability throughout the UA. However, the UA should encourage the participating organizations to develop a long-term strategy to determine or identify diversified or sustained funding that aligns with the regional strategic plan, which is under development. The Jersey City/Newark UA receives support from their leadership to obtain funding (e.g., executive committee allocated funding when the UA needed to address problems with in-building coverage).

Recommendations:

- Continue to be proactive in education efforts across stakeholders (e.g., distribute information through speaking engagements, distribute information pamphlets on communications interoperability)
- Encourage all participating agencies to fully adopt the strategic plan
- Encourage the development of a regional interoperability funding strategy, including long-term (e.g., 3 to 5 years) funding sources that can help leverage costs across jurisdictions (in addition to grants)

Standard Operating Procedures (SOP): *Established Implementation*

The Tactical Interoperable Communications Plan (TICP) incorporated interoperability policies and procedures that had been in place for two and a half years, and on which there was regular training and usage. Most agencies participated in the TICP process, and since that time, further steps have been taken to disseminate the regional SOPs (e.g., distributed to included organizations and dispatch centers, made gateway SOPs available with gateways). The use of equipment SOPs was successfully demonstrated during the TICP validation exercise, and as noted in the After Action Report "[t]he street force demonstrated superior understanding of the TICP, only a week after its formal approval and implementation." The exercise did expose minor gaps (e.g., setting up a unified command that didn't include all of the participating agencies) in the use of the National Incident Management System (NIMS)/Incident Command System (ICS),

which has been in place in the UA for less than 1 year. The UA does, however, exclusively use plain language as required in NIMS/ICS.

Recommendations:
- Continue awareness and understanding of policies and procedures across all agencies
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Jersey City/Newark UA uses its shared ultra high frequency (UHF) channels on a weekly basis to provide communications interoperability and regularly deploys and uses radio caches and gateways. The Jersey City/Newark UA did well with the use of available communications interoperability equipment during the TICP validation exercise. Some minor training issues were encountered during the exercise; for example the traffic units were discussing road closures on the same shared channel that the COML was performing a radio check until a dispatcher intervened. Overall, evaluators of the exercise noted that "users were proficient with the use of UTAC4, ITAC5, and OEM2 as shared channels" and "the gateway technician was proficient with the setup and use of the system."

Recommendations:
- Recommend additional training on how to use radios and available channels
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Jersey City Police Department operates a radio system with five UHF conventional channels. The Jersey City Fire Department radio system uses two UHF conventional channels. The Newark Police Department uses a conventional UHF radio system, and the Newark Fire Department uses a conventional very high frequency (VHF) radio system. Newark Emergency Medical Services (EMS) is also operating a radio system on the VHF band. All agencies can use the Essex County Sheriff's Radio System (UHF/VHF) for interoperability. All agencies also have access to the New Jersey Interoperability Communications System, which has eight 800 megahertz channels and nine VHF channels.

Jersey City is in the process of implementing a UHF trunked radio system for police, fire, and EMS. Estimated completion date is the end of calendar year 2007. In Newark, there is the possibility of implementing an Essex County trunked system to cover all agencies in the county, if funding issues can be resolved.

Buffalo, NY

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The Buffalo Urban Area (UA) includes the City of Buffalo, and the counties of Erie and Niagara.

Governance: *Established Implementation*

The UA's Interoperable Communications Committee was formed in 2006 and is taking steps to establish interoperability as a priority within the area. For example, the decision-making group is formalized (with subcommittees devoted to technology, operations, and governance) and includes federal partners. The group is working to reach out to additional public safety (e.g., emergency medical services [EMS]) and state agencies, as demonstrated through its partnership with the New York State Wireless Network for which Buffalo has been selected as the primary regional buildout. In addition, it appears that local and county elected officials are promoting the Urban Area Working Group's interoperable communications efforts (e.g., the Mayor of Buffalo participates on the committee). Regional, published interoperable communications agreements are included in the Tactical Interoperable Communications Plan (TICP), which is being disseminated to applicable agencies. The publication of a regional strategic plan, which is under development, would represent the next step in advancing interoperable communications governance across the area. Additional steps, including addressing a longer term funding strategy to identify diversified or sustainable funding sources, would help the Buffalo UA budget for the future system and additional regional interoperable communications needs.

Recommendations:

- Continue to expand subcommittee and working group membership to appropriate disciplines and levels of government (e.g., EMS, state, and federal representation) while continuing to document and formalize the necessary interoperability agreements (e.g., memoranda of understanding) with members
- Finalize and publish the existing regional strategic plan; align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Continue the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding
- Continue to involve government leadership on issues of communications interoperability and encourage long-term regional funding plans

Standard Operating Procedures (SOP): *Intermediate Implementation*

The TICP provided the first regional communications interoperability SOPs for the Buffalo UA, which included a majority of the local, state, and federal agencies within the area. Although the Buffalo UA did not have pre-existing SOPs, the agencies within the UA were able to effectively execute the SOPs as outlined in the TICP. For example, during the TICP validation exercise, the participants were able to successfully follow the policies and procedures to request, activate, deactivate, and resolve problems for radio caches, shared channels, and gateways. Although the National Incident Management System (NIMS)/Incident Command System (ICS) was only implemented in September 2006, responders demonstrated some proficiency in command and control during the TICP validation exercise (e.g., announced the

Communications Unit Leader designation to participants). The UA is working toward further NIMS/ICS training for law enforcement and EMS personnel which should address difficulties encountered during the exercise.

Recommendations:

- Ensure that regional SOPs are aligned with statewide planning efforts (e.g., develop SOPs for use of the future statewide communications system)
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The participating agencies in the TICP validation exercise demonstrated the ability to successfully achieve communications interoperability. During the exercise, the Buffalo UA adequately used and demonstrated all available means of communications (e.g., radio caches, gateways, and shared channels). Some notable issues did arise during the exercise. Buffalo officials indicate that there are designated shared channels to provide first responder interoperability. However, as noted in the After Action Report, "[t]here was limited communication between fire and EMS during the exercise; the two agencies did not discuss their needs and capabilities, coordinate their resources, or relay information regarding their actions to one another." The TICP validation exercise included federal agencies (e.g., Bureau of Alcohol, Tobacco, Firearms, and Explosives), which shows proactive effort on the part of the UA to include a broad range of response agencies. The UA is encouraged to build on its local exercise success by further integrating state, federal and support agencies in its future events.

Recommendations:

- Continue to exercise interoperability solutions that allows for direct communications between fire and EMS (as noted in the Improvement Plan)
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Buffalo UA has no shared radio systems and is supported by a mixture of conventional very high frequency (VHF) and ultra high frequency (UHF) radio frequencies. The Buffalo Police and Fire Departments operate separate UHF radio systems, and routine communications with regional law enforcement agencies is accomplished through the use of VHF high band frequencies.

Erie County Fire Departments operate VHF low band and UHF radio systems; the Erie County Sheriff operates a UHF radio system. In Niagara County, the Sheriff's Office operates a VHF high band radio system, whereas other law enforcement agencies in the county operate on a mixture of UHF and VHF frequencies. Niagara County Fire operates on both VHF low band and UHF. Interoperability with state and other regional agencies is achieved through the use of shared VHF and UHF channels, fixed and mobile gateways, and cached radios. The New York State Wireless Network is currently not available in the UA but is expected to be available late 2008.

New York City, NY

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The New York City Urban Area (UA) includes the core city (City of New York), the core city's surrounding counties of Nassau, Suffolk, and Westchester, the Port Authority of New York and New Jersey (PANYNJ), and the New York State Metropolitan Transportation Authority (MTA).

Governance: *Established Implementation*

Established in 2002, the New York City Interagency Communications Committee (NYCICC) is a formalized group that meets regularly to evaluate current states of interoperable communications and to develop strategies to exercise and drill communications capabilities, raise awareness within agencies, and ensure that improvements are coordinated. The group has been proactive in incorporating multiple local, regional, state, federal, and public support agencies in their decision-making process. Major organizations in the UA have existing agreements in place (e.g., and New York City Police Department [NYPD] & New York City Fire Department [FDNY] Executive Orders), although partnerships with smaller agencies in the area are informal. A strategic plan, which will incorporate counties from two additional states (i.e., Connecticut and New Jersey) is in development, but has not yet been adopted. Funding for interoperable capital improvements is provided through federal grants and supported by local resources to meet interoperability needs (e.g., dispatch and maintenance). The City of New York has prepared a four year financial plan, which should be included into a broader strategic plan for the region. While the NYCICC has coordinated regional communications efforts, additional participation and leadership from jurisdictions throughout the area is needed to achieve regionwide interoperability.

Recommendations:

- Ensure that all applicable local agencies are documented and referenced in agreements (e.g., memoranda of understanding, inter-governmental agreements) at a regional level
- Reference all applicable agreements in the Tactical Interoperable Communications Plan (TICP), and store them in an accessible format
- Establish a regular review process to ensure that agreements remain current and relevant
- Develop, document, and implement a regionwide strategic plan (beyond the operational focus to the TICP) with participant approval, adoption, and acceptance that takes into account a long-term communications funding strategy (in addition to grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Develop a funding strategy for identifying sustainable funding sources (in addition to grants) to cover lifecycle and recurring costs of the UA's communications interoperability assets
- Encourage broader involvement by senior government leadership from across the area on interoperability funding and procurement plans

Standard Operating Procedures (SOP): *Established Implementation*

The New York TICP is based on various existing policies and procedures (e.g., the New York Metropolitan Area Committee's Spectrum Relief for Interoperability Channels Memorandum). These SOPs were expanded to include both new procedures and additional jurisdictions in the area. The New York UA has taken steps to disseminate these policies to necessary agencies and their dispatch centers. Officials in New York City recognize that "ongoing training and exercises will only strengthen first responder awareness… and further advance the current SOPs based upon actual usage." New York City uses Citywide Incident Management System (CIMS) for command and control Incident Command System (ICS) implementation, whereas the rest of the UA implemented the National Incident Management

System (NIMS). TICP peer reviewers noted that consistency in ICS needs to be clearly articulated to ensure smooth integration of first responders from outside the city who are trained on NIMS procedures. CIMS has been certified as compliant with NIMS as both use the same ICS terminology, positions, and roles for first responders. However, agencies throughout the area still refer to CIMS and NIMS separately. It is therefore unclear if there is regionwide understanding that these command structures can be seamlessly integrated during a response. The limited scope of the TICP validation exercise did not provide the opportunity to see all aspects of this interaction. However, the procedures for command and control that were tested during the exercise were successfully demonstrated.

Recommendations:

- Continue to distribute updated regional communications interoperability SOPs (e.g., document demonstrated exercise procedures not originally included in the TICP)
- Develop training policies and requirements for inclusion in the TICP
- Ensure that the same command structure is used throughout the area (e.g., ensure CIMS and NIMS are consistently applied and practiced across the area)
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

New York City has developed multiple means of providing interoperable communications. As noted by exercise evaluators, FDNY and NYPD command "are now using the same radios on the same frequency band, which is a commendable development." Nassau County has a New York City operational frequency, and New York City and Suffolk County also share channels. New York City provides a common channel for coordination and interoperable communications among city agencies, as well as other agencies entering the city, to accomplish public safety missions. The exercise evaluators also noted a weekly roll call of Federal agencies using the Federal Interoperability Gateway-based System, which is commendable. Due to the limited scope of the exercise , which did not fully stress the communications capabilities of the UA, it is difficult to determine the level of local, regional, state, and federal participation in local response incidents. Officials in New York City indicate that they "have to do exercises more with [their] surrounding neighbors. These exercises need to be more robust." The exercise did not include any public support agencies (e.g., public health, utilities), and prevented adequate testing of interoperable communications (e.g., evaluators not given access to dispatch center to observe activation of a console patch).

Recommendations:

- Conduct robust exercises to test interoperable communications capabilities (e.g., more complexity, additional local, regional, state, and federal agencies)
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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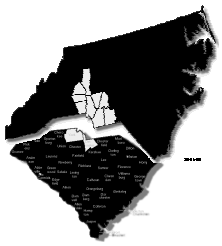
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

New York City UA has developed multiple means of providing interoperable communications. Command and control interoperability is provided by a Regional Wide-Area Interoperability system that is expanding into New Jersey and into Nassau, Suffolk, and Westchester counties. An 800 megahertz (MHz) trunked system has dedicated command and control talk-groups, such as ALERT, to provide high-level, interoperable communications for city, state and regional agencies. Within the UA, operational interoperability is provided by NYPD zone frequencies; tactical interoperability uses a common UHF point-to-point channel. The counties operate 800 MHz, ultra high frequency, and very high frequency systems providing interoperability to their public safety agencies. The UA also employs a variety of national law enforcement, New York State Police Mutual Rapid Deployment and National Public Safety Planning Advisory Committee mutual aid channels, which are accessible throughout the region. The Federal Interoperability Channel provides most federal agencies interoperability to local, regional, and state agencies throughout the UA and northeastern New Jersey as well.

Charlotte, NC

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Charlotte Urban Area (UA) includes the City of Charlotte; the North Carolina counties of Anson, Cabarrus, Catawba, Gaston, Iredell, Lincoln, Mecklenburg, Stanly, and Union; and the South Carolina counties of Lancaster and York. With Anson County added, collectively, these jurisdictions are known as the Piedmont Area Communications Consortium (PACC).

Governance: *Intermediate Implementation*

Coordination for communications in the Charlotte UA is provided by the PACC, which is working to establish communications interoperability as a regional priority. The PACC has been in place since 2003 addressing key communications interoperability issues, including the development of a multi-agency Department of Justice Office of Community Oriented Policing Services (COPS) project. The PACC has established formal partnerships among the 11 counties (in 2 states) that represent the Charlotte UA, and they are expanding to include public health and public works. In addition, the Charlotte Regional Communications Council (RCC) is established and in place for those agencies participating in the UA's shared system. However, as Charlotte officials indicated, the agreements have not yet been put into practice across the entire UA. Based on the activities of the governance group, it appears that regional leaders have made communications interoperability a priority (e.g., the UA has planned interoperability training for participating agencies). Despite this apparent prioritization of interoperable communications in the governance groups, no long-term strategic plan (including funding strategies) is in place. While agencies are considering regional interoperability needs, it appears that agencies still focus the use of grant funding on their individual, specific communications needs. This issue would be best addressed by developing a strategic plan that includes a longer term funding strategy to obtain diversifiable and sustainable funding for regionwide interoperable communications solutions.

Recommendations:

- Proactively recruit new PACC participants, including federal agencies
- Encourage planning and development of strategic plan (i.e., longer term collective goals for the UA) (beyond the operational focus of the Tactical Interoperable Communications Plan [TICP]) with participant approval, adoption, and acceptance; align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Pursue a regional communications interoperability funding plan as a component of this strategy, including long-term (e.g., 3 to 5 years) funding sources (in addition to grants)
- Consider the direct involvement of a high-level official, with political and fiscal authority, to specifically focus on interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The TICP provides the first regional communication SOPs for the Charlotte UA, which represents multiple jurisdictions and 29 radio systems. Before the TICP, every county had its own individual policies and procedures. Since the development of the TICP, the Charlotte UA has distributed the interoperable

communications SOPs across the area through the TICP Implementation Workshop. Additional steps, such as storing applicable SOPs with radio caches and gateways, would support the continued dissemination and implementation of these SOPs. In regards to command and control procedures, the Charlotte UA has been implementing the National Incident Management System (NIMS)/Incident Command System (ICS) for more than 1 year, allowing agencies time to develop proficiency. During the TICP validation exercise, the Charlotte UA successfully demonstrated NIMS/ICS, including the Communications Unit Leader (COML) position that had been newly incorporated. For example, a unified command was successfully established with Incident Commanders representing each of the jurisdictional agencies. Additionally, a COML was designated and announced to all relevant personnel.

Recommendations:

- Continue to maintain and update SOPs (e.g., through updates after scheduled tabletop communications exercises) to include policies for using new equipment, and disseminate to all included organizations
- Ensure that regional SOPs are aligned with statewide planning efforts
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Charlotte UA showed success in the use of all available communications interoperability methods (e.g., radio caches, shared channels, gateways, shared systems) during its TICP validation exercise. While interoperable communications equipment is not used on a daily basis, the Charlotte UA included all 11 counties in successfully exercising all available interoperability equipment. Charlotte had one of the most inclusive exercises with regard to the level of local agency participation. While the exercise met the stated requirements, it did not provide the opportunity to demonstrate interoperable communications with federal agencies in the area. The UA is encouraged to build on its local exercise success by further integrating state, federal, and support agencies in future events.

Recommendations:

- Involve public safety support disciplines, and state and federal agencies in training and exercises
- Consider adding communications interoperability as a component of all future exercises

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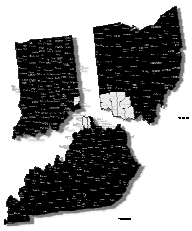
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Charlotte UA hosts 29 separate radio systems. Radio systems supporting first responders are a mixture of very high frequency (VHF), ultra high frequency (UHF), and 800 megahertz (MHz) systems. The City of Charlotte is serviced by the Charlotte/Mecklenburg 800 MHz Radio System, which supports public safety agencies from both the City of Charlotte and Mecklenburg County. Communications interoperability is provided by the use of cached radios, gateways, and shared channels. The Charlotte UA is working to incorporate Union and Gaston County into the Charlotte/Mecklenburg radio system. Using the existing Charlotte/Mecklenburg Motorola SmartZone™ 4.1 zone controller, Charlotte/Mecklenburg intends to interconnect its 800 MHz Radio System with those owned and operated by Union and Gaston counties and to establish a UA shared system.

Cincinnati, OH

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Cincinnati/Hamilton Urban Area (UA) includes the following counties: Butler, Warren, Clermont, Hamilton, Highland, Brown, Adams, and Clinton (Ohio); Boone, Kenton, and Campbell (Kentucky); and Dearborn (Indiana). The UA consists of Ohio UA6, also known as Southwestern Ohio, Southeastern Indiana, and Northern Kentucky (SOSINK).

Governance: *Intermediate Implementation*

The SOSINK established a communications subcommittee under the SOSINK regional Terrorism Preparedness Advisory Team to create the Tactical Interoperable Communications Plan (TICP) in October 2005. The committee includes representatives from the majority of local agencies within the UA counties. The documentation did not indicate whether the group has a charter that defines the authority of the group. The Cincinnati/Hamilton UA has formal mutual aid agreements among local agencies (e.g., fire, law enforcement, emergency medical services [EMS]) and local villages, townships, and cities. Agreements with broader public support and state agencies are provided through the Ohio Response System. The UA also lacks interstate agreements among state representatives in Ohio, Kentucky, and Indiana. Considering the complex nature of coordination necessary among three states and multiple localities, a regional strategic plan for interoperable communications is critical to ensure regionwide interoperability, which currently does not exist. The UA should consider including a longer term funding strategy that is diversified and sustainable, and aligns with the UA's interoperable communications needs. Currently, the UA receives funding from federal grants to fund the regional system. The UA's leadership has demonstrated the importance of interoperable communications by allocating a large portion of acquired federal grant funding to communications interoperability equipment in addition to substantial local funds. However, there is no specified strategy to ensure sustained funding for interoperability needs. Despite the success of the area's leadership, fiscal and political support dedicated to tri-state interoperability is an issue that calls for ongoing, enhanced coordination.

Recommendations:

- Continue to involve state and federal organizations (e.g., Kentucky and Indiana State Police, Federal Bureau of Investigation) in the committee, develop a charter to establish roles, responsibilities, and authority
- Continue to document and formalize agreements (e.g., memoranda of understanding) among all participating agencies (e.g., interstate agreements among Ohio, Kentucky, and Indiana) to support partnership on regional interoperability, allocate resources to complete the formalize agreements, and renew effort to increase involvement among all appropriate local, state, and federal agencies, particularly law enforcement
- Develop, document, and implement a consensus tri-state regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance; align local and statewide strategic planning efforts to ensure that tri-state regional interoperability needs are met
- Develop and implement a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding (in addition to grants)
- Continue to identify a champion(s) from each of the states to establish a governance structure that more fully supports a unified tri-state regional approach to planning, policy, and operations

Standard Operating Procedures (SOP): *Intermediate Implementation*

The TICP represents the first formal interoperable communications regional SOP for the Cincinnati/Hamilton UA. The UA has taken some steps to implement these new SOPs (e.g., store radio cache SOPs with radio caches), and has plans to further distribute the TICP to tri-state area public safety agencies. The Cincinnati/Hamilton UA is currently working

toward implementing the National Incident Management System (NIMS)/Incident Command System (ICS), and SOSINK is assisting in the delivery of NIMS/ICS training. The Cincinnati/Hamilton UA demonstrated familiarity with command and control communications during the TICP validation exercise, and requires continued training for proficiency in some command and control procedures as documented in the TICP validation exercise (e.g., incident and unified commands were established but not in a timely manner, a Communications Unit Leader was designated, but not announced to exercise participants).

Recommendations:

- Continue to develop tri-state regional interoperability SOPs consistent with the TICP, further disseminate throughout UA (in addition to storing radio cache SOPs with cache), and train all participating agencies
- Continue to involve additional state and federal agencies in development of tri-state Regional SOPs
- Identify the title and source documentation for existing SOPs in the TICP
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Intermediate Implementation* 

The Cincinnati/Hamilton UA regularly uses a shared system that provides communications interoperability across 4 of the 8 Ohio counties in the area and among counties in Kentucky and Indiana. Officials indicated that there historically had not been a need for interoperable communications among all 12 counties in the UA. Although the UA does not regularly use its interoperable communications equipment across all 12 counties, it elected to pursue a complicated TICP validation exercise that stressed its interoperability capabilities so that it could positively identify areas for improvement. During the TICP validation exercise, some of the types of solutions presented difficulty for the UA in terms of demonstrating familiarity and proficient use (e.g., distributed radio cache without training or instructions). Despite issues with the radio caches, the Cincinnati/Hamilton UA was able to demonstrate familiarity with other available interoperability equipment, including shared channels and gateways.

Recommendations:

- Continue to regularly test and exercise deployment of Regional interoperability resources to improve proficiency (e.g., radio cache and gateways)
- Continue to practice multijurisdictional and multidiscipline communications during future exercises and day-to-day activities, and include all 12 counties
- Consider adding communications interoperability as a component of future exercises in the tri-state area

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

All public safety agencies in the City of Cincinnati and Hamilton County operate on a shared, Project 25, digital, 800 megahertz radio system. Disparate systems are common throughout the rest of the SOSINK UA. The City/County has identified interoperable communication links with surrounding agencies, such as National Public Safety Planning Advisory Committee channels, gateways, and shared frequencies.

Cleveland, OH

Tactical Interoperable Communications Scorecard

Summary

Governance: *Early Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Cleveland Urban Area (UA) includes the City of Cleveland and more than 57 other cities and municipalities within Cuyahoga County.

Governance: *Early Implementation*

The Cuyahoga County Emergency Services Advisory Board has an informal communications subcommittee addressing interoperability that consists of regional fire, law enforcement, and public health representatives on an ad hoc basis. Currently, there are no published and active agreements among the regional agencies, although the UA plans to implement the Tactical Interoperable Communications Plan (TICP) as the area's first formal agreement once it is adopted by participating agencies. The decision-making group informally recruits public safety support agencies and has some limited involvement with the Cleveland Mayor's office. A technical communications study was conducted in 2002, but the result is not clearly defined as the UA's formal strategic plan nor is it known whether it includes the necessary components to create a strategic plan. The current funding for interoperable communications is mainly through federal grants with no long-term funding plan to apply regional resources to communications interoperability needs. Coordination and cooperation among individual jurisdictions is not well established and agencies have their own agenda with regard to communications interoperability. Although the first responder community is dedicated to advancing interoperable communications capabilities, there does not appear to be a direct line of communications among regional and state leaders.

Recommendations:

- Establish a regular meeting schedule and membership, include all agencies, and define roles and responsibilities
- Develop and document the necessary agreements (e.g., memoranda of understanding) that include local, state, and federal agencies to support partnerships on regional communications interoperability
- Develop a strategic plan beyond the technical study and operational focus of the TICP with participant approval, adoption, and acceptance; align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Develop a regional approach to long-term (e.g., 3 to 5 years) communications interoperability planning and sustainable funding
- Consider the direct involvement of a high-level official with political and fiscal authority to specifically advocate for and focus on communications interoperability
- Consider establishing a direct line of communication among the local and state level organizations to advocate the importance of interoperable communications

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Cleveland UA's TICP represents the first formal interoperable communications regional SOPs for the area. The level of participation in the development of the TICP was limited and should be increased to ensure the TICP addresses the needs of all public safety agencies within the UA. Additionally, the TICP has

not yet been finalized and formally accepted, which represents a significant set back in advancing communications interoperability across the area. In regards to command and control procedures, the Cleveland UA is in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS), and has begun training for fire, law enforcement, emergency medical services, and public support disciplines (e.g., hospitals). However, the UA demonstrated deficiencies during the TICP validation exercise, such as the Communications Unit Leaders experienced problems identifying themselves during emergency response, there were not enough COMLs at the incident, and there was a delay of 45 minutes in establishing a command post.

Recommendations:
- Adopt the TICP as the regional communications plan
- Once adopted, disseminate and train personnel on regional SOPs, and ensure consistency with regional and statewide communications interoperability planning efforts
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The Cleveland UA demonstrated familiarity and successful use of the interoperable communications equipment during the TICP validation exercise (e.g., shared channels and shared systems). However, the UA also experienced several deficiencies with radio caches or gateways that illustrate the need for continued testing and exercising of interoperable communications equipment (e.g., improvements needed in setup and use of gateways for command and control purposes). For example, the talk groups established on the shared system were not appropriately set up to handle traffic, and gateways at a site experienced technical problems. Additionally, in a recent real-world event (blackout in 2003), Cleveland officials indicated that it had difficulty in establishing interoperable communications across agencies and jurisdictions. For example, federal agencies had problems in the TICP validation exercise (e.g., U.S. Coast Guard did not have a direct line of communication with the Cleveland UA emergency response units).

Recommendations:
- Regularly test and exercise deployment of regional interoperable communications resources to improve proficiency (e.g., radio cache and gateways)
- Involve additional local, state, and federal agencies in training and exercises
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

In the UA, the City of Cleveland and remaining agencies in Cuyahoga County operate 20 very high frequency, 20 ultra high frequency, and seven 800 megahertz (MHz) radio systems. Interoperability is achieved by sharing radios, gateways, and channels (National Public Safety Planning Advisory Committee and Multi-Agency Radio Communications System [MARCS]). Various agencies have access to the State of Ohio MARCS 800 MHz digital trunked system's radios for command and control during multi-agency incidents. The City of Cleveland and Cuyahoga County are in the process of developing the Cuyahoga Area-wide Radio System (CARS). CARS is a countywide Project 25-compliant 800 MHz digital trunked system that will be used by all agencies in the jurisdiction.

Columbus, OH

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The Columbus Urban Area (UA) includes the City of Columbus and Franklin County, inclusive of all jurisdictions within that county.

Governance: *Advanced Implementation*

The Franklin County Board of Commissioners and the Mayor of the City of Columbus have made public safety communications a priority for the UA and have developed a governance structure that demonstrates their focus on tactical communications interoperability. The Homeland Security Advisory Committee, which they established, created a subcommittee for interoperable communications technical issues and additional subcommittees to address other topics, including operational and training issues. The governance structure has been in place for interoperable communications since the establishment of the 800 megahertz (MHz) Advisory Committee in 1995, has been refined through work with COPS in 2003, and more recently through the Tactical Interoperable Communications Plan (TICP) process. Additionally, the Columbus UA has an interoperability strategic plan in place and is accepted by all participating agencies within the UA prior to the development of the TICP. Franklin County officials indicated that they were preparing to begin strategic planning efforts beyond the UA, including all of the 14 counties in the Ohio Homeland Security Region 4. Political leaders (e.g., the Franklin County Board of Commissioners and the Mayor of the City of Columbus) have provided policy and fiscal support for interoperable communications issues, and budgeting is developed based on regional (rather than agency-specific) needs. Agencies have individually agreed in writing to support their own required operational and maintenance costs following the expiration of equipment warranty periods across the shared system. The area is encouraged to consider whether their current approach to prioritizing and sustaining funding is sufficient to support its long-term interoperability goals of including additional agencies as part of the 800 MHz shared system. The Columbus UA has an ongoing maintenance and upgrade plan that is supported by user fees.

Recommendations:

- Continue to recruit and involve organizations, even if they are not specifically involved in the decision-making group
- Implement the review and revision of strategic plans (beyond 1 year) according to the needs of the UA
- Encourage a regional interoperability funding strategy, including funding sources that will be needed to address long-term goals (i.e., new investments, extending the existing shared system)

Standard Operating Procedures (SOP): *Advanced Implementation*

The Columbus UA has had communications interoperability SOPs in place for more than a decade, and all existing SOPs were incorporated into the TICP. As with a previous United States Department of Justice Office of Community Oriented Policing Services (COPS) grant, the UA used the TICP development process as an opportunity to update and enhance its policies. The UA is commended for taking aggressive steps in disseminating these policies through bi-monthly training sessions for member agencies based on the TICP Implementation Workshop. The National Incident Management System (NIMS)/Incident Management

System (ICS) has been implemented for more than 1 year, and the successful use of these procedures (including those regarding Communications Unit Leader [COML] position) was demonstrated during the UA's TICP validation exercise (e.g., the COML was identified).

Recommendation:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

In addition to regular usage of interoperability resources for real-world responses, the Columbus UA has undertaken an aggressive training and exercise plan for communications. The UA holds regular training exercises, including monthly exercises on the use of its gateways. The benefit of this regular usage was demonstrated in the TICP validation exercise, which showed proficiency in each category of interoperable equipment. For example, evaluators observed the effective set-up and activation of the gateway listed in the TICP. In addition, interoperable communications was provided for regional responders above and beyond the core responders, including Franklin County Sheriff's Office, Franklin County Emergency Management, Ohio Department of Transportation, Ohio National Guard, Federal Bureau of Investigation, and Bureau of Alcohol, Tobacco, Firearms, and Explosives.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Currently, two major radio systems are used by governmental agencies in Franklin County. Both systems are 800 MHz, Motorola SMARTNET II™, trunked analog radio systems. Recent upgrades were made to dispatch consoles to promote and provide for "interoperability" dispatching. The majority of the public safety agencies in the county are using the City of Columbus system, while many of the public service agencies are on the Franklin County system. These two systems provide interoperability by using common technology, allowing talk groups from both systems to reside on the same radio.

The vision of the Columbus UA is first to coordinate interoperability in the Columbus area and second, to continue to incorporate other counties within Homeland Security Region 4 into the committee. To foster achievement of this objective, the committee's goal is to permit all of the government agencies in Region 4 to gain interoperability with any other agency in the area by accomplishing the following—

- Establishing the ability to change talk groups on any radio
- Using the statewide Multi-Agency Radio Communications System
- Connecting disparate radio systems through a gateway device or via console patches at all dispatch centers
- Distributing radios to other agencies to provide interoperability with local radio systems and channels.

Toledo, OH

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Toledo Urban Area (UA) includes 22 jurisdictions—the cities of Maumee, Sylvania, Oregon, and Toledo; and the townships of Harding, Jerusalem, Monclova, Providence, Richfield, Spencer, Springfield, Swanton, Sylvania, Washington, and Waterville; and the villages of Berkey, Holland, Neapolis, Ottawa Hills, Swanton, Waterville, and Whitehouse. The Toledo UA is located in Lucas County in northern Ohio.

Governance: *Intermediate Implementation*

The Governance Board, a formalized group appointed by county commissioners, has been focused on the Tactical Interoperable Communications Plan (TICP), which has provided communications interoperability agreements for agencies within the county, and implementing a new countywide 800 megahertz (MHz) Project 25 (P25) system. With strong support from local leaders, the new system is expected to markedly improve multi-agency communications within Lucas County. Funding has been put in place to support implementation of the new system, and it is assumed that a newly passed 9-1-1 levy will also support ongoing system operation. The Toledo UA funding strategy is considered a best practice for diversifying funding sources for sustainable communications interoperability funding. Despite the partnerships involved in the creation of the countywide 800 MHz system, the governance group has not taken steps to ensure that interoperability is achieved with surrounding counties, state agencies, and additional support organizations. Although some long-term thinking is occurring to consider communications interoperability challenges with agencies outside of the UA, an overall strategic plan does not exist to facilitate regional interoperability. Toledo officials indicated that these strategic planning is a responsibility of the Countywide Safety Communication System Advisory Committee and that they hoped to address this when additional funding became available.

Recommendations:

- Continue to involve state and federal organizations (e.g., state police, federal agencies operating in area) in the group, ensuring that their roles and responsibilities are documented within the group, and consider more regular participation in statewide interoperability committee efforts
- Document and formalize agreements (e.g., memoranda of understanding) among all participating agencies to support partnerships on regional interoperability
- Consider broadening agreements to include state, federal, and international agencies
- Develop and implement a strategic plan (beyond the operational focus of the TICP), with participant approval, adoption, and acceptance
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Enhance regional interoperability funding strategy and methods to include additional long-term (e.g., 3 to 5 years) funding sources in line with interoperability goals and as documented through the strategic planning process
- Leverage partnerships involved in regionwide system development to emphasize broadening aspects of interoperability (e.g., strategic planning, additional agreements among state and federal agencies)

Standard Operating Procedures (SOP): *Intermediate Implementation* 

The TICP provides the first regional communications interoperability SOPs for the Toledo UA. Toledo officials indicated that policies were previously in place for computer-aided dispatch operations, but not voice interoperable communications. While these interoperability SOPs are less mature, the UA has done well in disseminating and applying them. Since completing the TICP, the UA has taken numerous steps to distribute the TICP (e.g., distributed to all included organizations and dispatch centers, distributed through TICP Implementation Workshop) although officials recognize that "it may take time to get everyone on board 100 percent." This statement was proven accurate during the TICP validation exercise, which noted some challenges with operating within the procedures established by the TICP. With respect to communications requirements in the National Incident Management System (NIMS)/Incident Command System (ICS), the Toledo UA has been implementing these procedures more than 1 year. As noted in the After Action Report, the UA "can benefit from continued basic and advanced training in NIMS/ICS, including areas such as the rapid establishment of Unified Command, the development of Incident Action Plans, and appropriate ICS terminology." The UA has begun incorporating the communications unit into its command structure and indicated that this unit will participate in future training on its responsibilities.

Recommendations:
- Continue to distribute SOPs throughout the UA, and train all participating agencies
- Ensure all regional interoperability SOPs are in place, in practice, and increase proficiency in their use
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Intermediate Implementation* 

The Toledo UA regularly uses shared channels and shared systems for day-to-day and mutual aid responses. It was noted in the After Action Report that the UA demonstrated familiarity with and use of interoperable communications equipment for effective communications (e.g., shared channels). However, some deficiencies were observed. For example, the use of radio caches created problems when the radios were distributed to agencies that were not trained on their use by the Communications Unit Leader. Additionally, while multiple gateways were successfully used, some agencies were unable to communicate because of the failure to establish a console patch.

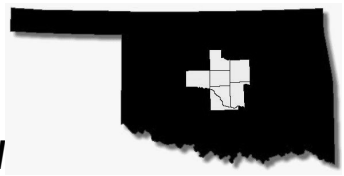
Recommendations:
- Regularly test and exercise deployment of regional interoperability resources to improve proficiency (e.g., dedicated position available that understands operations and activation of the console patch)
- Continue to involve additional state and federal agencies in training and exercises
- Consider adding communications interoperability as component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The City of Toledo Police and the Fire and Rescue Departments use the Toledo 800 MHz trunked radio system. The Lucas County Sheriff's Office operates on an ultra high frequency (UHF) system; however, many command and control personnel have access to the Toledo 800 MHz system. All other agencies within Lucas County are on various very high frequency and UHF systems. Various agencies have access to the State of Ohio Multi-Agency Radio Communications System (MARCS) 800 MHz digital trunked radios for command and control during incidents. All agencies within Lucas County will migrate to the Countywide 800 MHz Digital Communications System which is designed to meet P25 standards, beginning in June/July 2007. Interoperability is achieved through cached radios, gateways, and shared channels (on the Toledo system, and National Public Safety Planning Advisory Committee and MARCS).

Central Oklahoma, OK



Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The Central Oklahoma Urban Area (UA) is composed of Oklahoma Office of Homeland Security (OKOHS) Regions 6 (Logan, Lincoln, Pottawatomie, Cleveland, McClain, Canadian counties and the cities contained therein) and Region 8 (Oklahoma City and Oklahoma County and the cities contained therein).

Governance: *Intermediate Implementation*

The Central Oklahoma Urban Area Security Initiative (COUASI) Working Group is comprised of 26 executive level individuals who represent more than 13 response, governance, and public safety disciplines. The Working Group established the Interoperable Communications Subcommittee to create the Tactical Interoperable Communications Plan (TICP). The subcommittee is comprised of technical communications experts on each of the communications networks within the COUASI. The Subcommittee currently includes limited local public safety organizations, but is working to expand membership (e.g., to include rural fire and law enforcement agencies). Additional local, state, and federal participation will assist in further developing interoperable communications in the UA. Beyond the TICP, there are only some formal agreements among local law enforcement and fire, and the UA is working to create additional formal partnerships among the remaining agencies in the area. From the information provided, COUASI does not have a documented and formal strategic plan for regional communications interoperability. Organizations appear to develop their budgets and procure communications equipment with consideration for regional interoperability. However, the UA does not seem to have a sustainable funding plan in place for lifecycle communications system costs. The UA's leadership demonstrates an understanding of the importance of interoperable communications and is providing fiscal and political support (e.g., initiating sales tax funding, and mayoral representative on communications subcommittee). The establishment of sales taxes to support communications improvement is commendable.

Recommendations:

- Expand Interoperable Communications Subcommittee membership to include rural, state, federal, and tribal agencies in addition to State Department of Homeland Security and the Federal Bureau of Investigation (FBI)
- Consider further integration of technical and operational working groups to ensure requirements are met
- Reference all applicable agreements (e.g., memorandum of understanding [MOU], intergovernmental agreements) in the TICP and store them in an accessible format
- Document and formalize agreements (e.g., signed MOUs with defined roles and responsibilities) among all participating agencies to support partnerships on regional interoperability and establish a regular review process
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance, that takes into account a long-term funding strategy
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Initiate development and implementation of a regional approach to long-term (e.g. 3 to 5 years) interoperability planning and sustainable funding that is consistent with the strategic plan
- Continue to involve senior government leadership on interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation*

The SOPs included in COUASI's TICP represent the area's first consensus interoperable communications plan. The absence of a formal set of interoperability SOPs prior to the TICP development process indicates that public safety agencies in the UA have not, until recently, been conforming to a single set of SOPs, and familiarity must be less than optimal. The UA is taking steps to disseminate the newly created SOPs and has plans for conducting training on them.

During the exercise, the participants experienced some procedural problems with shared channels and would benefit from adding region-specific policies and procedures to the TICP. Although National Incident Management System (NIMS)/Incident Command System (ICS) implementation began less than 1 year ago, the participants in the TICP validation exercise demonstrated familiarity with the processes and only had a few minor problems (e.g., Communications Unit Leader [COML] designation was not officially announced, lack of communication between the COML and dispatch, as their procedures required). The annual review process for the COML training requirements and procedures and OKOHS compliance process demonstrate the UA's clear dedication to NIMS/ICS, which is commendable and recommended as a best practice.

Recommendations:

- Continue to develop and distribute regional interoperability SOPs (beyond the TICP), and put them into practice through regular training, exercise, and use (e.g., dispatch center and COML communications)
- Consider scheduling a regular review and update process of policies and procedures
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance
- Ensure that the best practice of having oversight committee to monitor NIMS/ICS training remains a regional priority

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Usage: *Established Implementation* 

COUASI frequently uses the available means of interoperable communications (e.g., shared channels, shared systems, and gateways) in day-to-day activities. During the exercise, the first responder participants were able to establish communications with the interoperable equipment with minimal problems (e.g., some difficulties in using shared channels). Despite these demonstrated successes and although the TICP validation exercise met set standards, broader state and federal agencies were not widely included. Assessing the degree to which the local agencies in the UA can easily use interoperable communications equipment with state and federal agencies was therefore limited. The UA is encouraged to build on its success by further integrating state, federal, tribal, and support agencies in future tests.

Recommendations:

- Regularly test and exercise deployment of regional communications interoperability resources (e.g., emergency medical services [EMS] had difficulty with shared channels) to improve proficiency
- Consider including additional state and federal agencies (e.g., Oklahoma Department of Transportation, FBI) in future exercises and day-to-day use
- Consider adding communications interoperability as an evaluation component for all future exercises and daily activities

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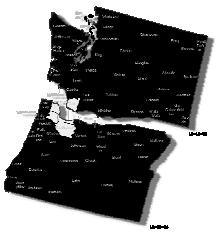
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The UA has made great strides toward achieving its vision of consistent 800 MHz interoperable communications system. Each city in the UA uses a radio system for its jurisdictional police, fire, and EMS agencies. Each radio is configured with interoperability channels that are shared with other agencies. No interoperable talk groups are identified in the TICP that are used by agencies outside of the system jurisdiction. Cross-jurisdictional interoperability requires technology such as gateways or shared frequencies. Four gateways are available but the 64-port Causeway Switch managed by Oklahoma City provides the greatest degree of interoperability. National Public Safety Planning Advisory Committee channel usage and Emergency Operations Center coordination are minimal in this UA. In the future, Oklahoma City plans to implement a crossband switch that will connect mutual aid channels. In addition, the State of Oklahoma has a 5-year plan to extend its Motorola 800 MHz trunked system along major highways (i.e., I35, I44, and I40 East).

Portland, OR

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The Portland Urban Area (UA) includes the Oregon counties of Clackamas, Columbia, and Multnomah, and Washington, and Clark County in Washington State.

Governance: *Intermediate Implementation*

The Portland Dispatch Center Consortium (PDCC) across and the associated Urban Area Security Initiative communications working group provide coordination in the area for communications interoperability issues. The PDCC was established by intergovernmental agreement and has been formalized through a charter for more than 3 years. Some formal partnerships among participating agencies exist through memoranda of understanding (MOU), while other jurisdictions still operate through informal cooperation. The five counties in the UA have developed strategic plans, and the Portland UA is now in the process of consolidating these county plans into an overarching regional strategic plan for communications interoperability. As such, the UA does not have an accepted strategic plan. The Portland UA indicated that members have come together to pursue a regional approach to funding; however, their interoperability priorities appear to be driven by available grants rather than a long-term, sustainable funding strategy. This funding strategy, as well as support from local and state leaders, will be critical as key shared systems approach the end of their lifecycles.

Recommendations:

- Involve state and federal organizations (i.e., include applicable State of Washington agencies) in the decision-making group, document roles and responsibilities, and
- Ensure that the UA becomes actively engaged in state communications interoperability committee efforts
- Document and formalize agreements (e.g., MOUs) among all participating agencies to support partnerships on regional interoperable communications
- Continue to develop and implement a strategic planning process (beyond the Tactical Interoperable Communications Plan [TICP]), with participant approval, adoption, and acceptance
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Encourage the development of a regional interoperability funding strategy inclusive of long-term (e.g., 3 to 5 years) funding sources (in addition to grants)
- Continue to broaden and champion a governance structure that would more fully support regional communications interoperability
- Consider the direct involvement of a high-level official, with political and fiscal authority, to specifically focus on interoperable communications.

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Portland UA TICP represents the first formal regionwide interoperable communications SOPs or the area. Prior to the development of the TICP, the UA had informal, undocumented SOPs that were incorporated into the TICP. The UA has taken steps to distribute the interoperable communications SOPs

(e.g., distributing the policies through the TICP Implementation Workshop, including applicable SOPs with gateways and radio caches). In regards to command and control procedures, the Portland UA is in the process of implementing the National Incident Management System (NIMS)/Incident Command System (ICS), and training is ongoing. The TICP validation exercise demonstrated some gaps with the communications procedures set forth by NIMS/ICS and the communication unit, specifically how the communications unit did not precede the unit identifier with agency name, and no name was given to the incident.

Recommendations:
- Document, update, and put into practice regional communications interoperability SOPs, and continue to disseminate them throughout the UA
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Portland UA uses shared systems and shared channels on a daily basis. Agencies report the regular use of gateway systems, which are needed to connect disparate 800 megahertz (MHz) and very high frequency (VHF) systems. The UA demonstrated successful use of each category of interoperable equipment during the TICP exercise. For example, the local and regional first responders were able to communicate with other units using a set of shared talk groups and shared channels. The level of familiarity and frequency of use of interoperable communications equipment among local first responders was adequate, but the degree to which this proficiency extends to interoperability with state and federal agencies is not identified as such agencies were not fully involved in the exercise. The Portland UA is encouraged to build on this success by further incorporating state, federal, and support agencies in its TICP and future exercises.

Recommendations:
- Involve state and federal agencies in training and exercises
- Regularly test and exercise the deployment of regional interoperability resources to improve proficiency (e.g., radio cache)
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

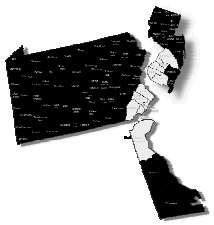
Technology Overview

The Portland UA has a number of shared radio systems operating primarily in the 800 MHz and VHF bands. Communication between systems in different bands is established using gateways in conjunction with the national mutual aid frequencies.

The Portland UA is currently planning for 800 MHz re-banding. In conjunction with the required reprogramming associated with the re-banding process, the Portland UA will simultaneously establish common naming conventions for talk groups on the regional shared systems. Some of the shared systems provide overlapping coverage. Thus, a single regional Project 25 shared system is a potential next step for the UA.

Philadelphia, PA

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

The Philadelphia Urban Area (UA) includes Bucks, Chester, Delaware, Montgomery, and Philadelphia counties. In addition, the UA has expanded to include the following: Camden, Gloucester, Salem, Burlington, and Cumberland counties in New Jersey and New Castle County in Delaware.

Governance: *Intermediate Implementation*

The Philadelphia UA communications subcommittee reports to the Southeastern Counter Terrorism Task Force and includes local, state, and federal participating agencies (e.g., ports authorities, State Police, U.S. Coast Guard). Based on the provided documentation, it was not noted whether the subcommittee has established authorities (through a published charter) or clearly delineated roles and responsibilities. The UA has formal partnerships among the public safety organizations and formal agreements among most of the agencies in the UA (specifically the counties in Pennsylvania), which facilitates partnerships and multi-agency coordination. However, the formal agreements and partnerships do not yet include all first responder agencies from the New Jersey (where individual counties do not have the power to enter into a mutual aid agreement and must involve the state government for approval) and Delaware counties included in the recently expanded UA. The Philadelphia UA is developing a strategic plan for interoperable communications, but no plan is yet published. Completing and distributing a plan would aid in solidifying interoperability goals that take into account all counties in the designated UA. Using Urban Area Security Initiative funds, the UA develops budgets and procures equipment according to strategic interoperability goals; however, it is unclear how sustainable operations and maintenance funding for interoperability equipment and solutions will be obtained.

Recommendations:

- Consider distributing a formal charter to all participating agencies and continue to meet regularly and proactively recruit new participants
- Put into practice agreements (e.g., memoranda of understanding) and establish processes to develop and review agreements at least every 3 to 5 years and after significant events or upgrades
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the Tactical Interoperable Communications Plan [TICP]) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (in addition to grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Identify long-term (e.g., 3 to 5 years) sustainable funding for communications interoperability in addition to grants
- Involve senior government leadership broadly across the UA on interoperability
- Ensure that discipline-specific leadership is actively involved in promoting the adoption of the National Incident Management System (NIMS)/Incident Command System (ICS)

Standard Operating Procedures (SOP): *Established Implementation*

The Philadelphia UA has incorporated existing policies, practices, and procedures into its TICP and is developing system usage rights for inclusion in the plan. The UA distributed its SOPs to all included

organizations and participated in the TICP Implementation Workshop to train the participating agencies on the SOPs. Although the UA had existing SOPs and provided training on them, the participants experienced some minor procedural problems during the TICP validation exercise (e.g., dropped initial gateway patch, activation procedures were not strictly followed). Despite officially implementing the NIMS/ICS less than 1 year ago, the exercise evaluators reported that the Philadelphia UA's agencies demonstrated "textbook deployment" of incident command, and the Communications Unit Leader effectively performed his duties during the exercise. Officials within the area indicated that further training to expand NIMS/ICS implementation beyond fire services was being established.

Recommendations:

- Put regional communications interoperability SOPs (beyond the TICP) into practice through regular training (e.g., in-service refreshers and basic training courses), exercises, and usage to increase proficiency in implementation of these policies (e.g., to correct gateway issues with activation procedures)
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The Philadelphia UA reports the ability to use communications interoperability solutions well in task force situations. For day-to-day events, however, the TICP validation exercise demonstrated that "some participants have not had sufficient practice in the use of the equipment." While the interoperable communications equipment (e.g., shared systems, shared channels, gateways) was generally effectively demonstrated during the TICP validation exercise, the exercise evaluators and the After Action Report clearly indicate that some participants were unfamiliar with the interoperable equipment and assets. A full understanding of all agencies' capability within the UA is hard to gauge given that the TICP validation exercise did not include broad participation by agencies within the Philadelphia UA, or counties in Delaware in New Jersey due to the expedited timeline for completion and conflict with another regional exercise.

Recommendations:

- Implement a regular training schedule (e.g., in-service refreshers and basic training courses) and regular exercises that put regional communications interoperability equipment into practice to increase proficiency
- Consider adding communications interoperability as a component of all future exercises across the UA and ensure that all jurisdictions within the area are involved in such events

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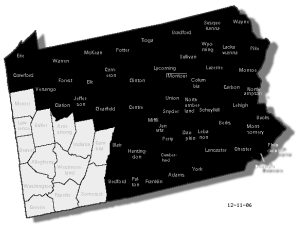
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Philadelphia UA operates 19 separate communications systems, including very high frequency, ultra high frequency, 500 megahertz (MHz), and 800 MHz conventional and trunked systems to support various public safety agencies. The City of Philadelphia operates an 800 MHz, Motorola SmartZone™ system. Limited interoperability is provided using gateways, radio caches, and shared channels. The Southeastern Pennsylvania Transportation Authority operates a SyTech Radio Inter-Operability System (RIOS) gateway, which it allows county and city agencies access upon request to improve interoperability among regional responders. The mid-term strategy for the UA is to implement a microwave communication system and voice radio network that will provide secure communications links between 11 county dispatch and 11 Emergency Operations Centers in the UA.

Pittsburgh, PA

Tactical Interoperable Communications Scorecard



Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Pittsburgh Urban Area (UA) includes the City of Pittsburgh and the counties of Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Greene, Indiana, Lawrence, Mercer, Somerset, Washington, and Westmoreland.

Governance: *Established Implementation*

The governance structure developed by the Pittsburgh UA can serve as a model for other jurisdictions. It is based on 8 years of success in working regionally across a complex mix of jurisdictions to develop published and active mutual aid agreements and communications interoperability solutions (e.g., Southwestern Pennsylvania Emergency Response Group). The Pittsburgh UA leadership is a model for other UAs that include a large number of jurisdictions. The UA has an existing plan for strategic and operational interoperable communications efforts. However, no regular review process for the strategic plan has been established. Public safety agencies in the Pittsburgh UA develop budgets based on strategic goals of the area and work to ensure that equipment purchases are compatible. However, there is no regional solution for recurring and lifecycle costs because grants are the main source of funding.

Recommendations:

- Identify a regular (i.e., annual) review cycle to update regional strategic plan
- Encourage regional interoperability funding strategy, including long-term (e.g., 3 to 5 years) funding sources to cover operations, maintenance, and other recurring costs (in addition to grants)

Standard Operating Procedures (SOP): *Established Implementation*

The Pittsburgh UA Tactical Interoperable Communications Plan (TICP) is built on existing formal and informal policies and procedures for interoperable communications that have been in place for a number of years. In general, the UA demonstrated some success in the use of SOPs during the TICP validation exercise, but a few gaps were displayed (e.g., unit identifiers not correctly used, problems with fixed and mobile gateways) that highlight minor weaknesses in the application of the SOPs. The UA is currently addressing these issues and plans to finish documenting and disseminating updated SOPs to all agencies by March 2007. Although the Pittsburgh UA first responders have not yet fully implemented the National Incident Management System (NIMS)/Incident Command System (ICS), they are making excellent progress toward developing and disseminating NIMS-compliant SOPs.

Recommendations:

- Consider regularly exercising SOPs that test the UA's proficiency (e.g., document shared channels), and distribute updated plans to all included organizations
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Established Implementation* 

Currently, there is adequate communications interoperability within each of the 13 counties, but limited interoperability among the 13 counties and the State of Pennsylvania. During the TICP validation exercise, Pittsburgh demonstrated the ability to regularly and successfully use existing interoperability equipment and showed proficiency and familiarity with some communications equipment including radio caches and shared channels. However, during the TICP validation exercise, users displayed some difficulty in using specific interoperability solutions (e.g., deactivation procedure for gateways). For example, the TICP validation exercise exposed some problems with patching the Westmoreland County public safety agencies (e.g., police department, fire department) 800 megahertz (MHz) system to a channel used by the incident command. Assessing the degree to which the local agencies in the UA can easily use interoperable communications equipment with state and federal agencies was not possible. While the exercise met the stated requirements, the area is encouraged to build on its success by further integrating state, federal, tribal, and support agencies in future tests.

Recommendations:

- Continue to train and exercise on available technology (e.g., gateway solutions) to improve familiarity of use, and work toward seamless integration of interoperable communications solutions
- Consider adding communications interoperability as a component of all future exercises to continue to build awareness of and fluency with communications interoperability resources

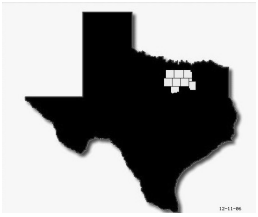
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Pittsburgh UA, Pennsylvania Region 13, has 102 shared systems. The 13 counties have various systems including ultra high frequency (UHF), very high frequency (VHF), 800 MHz Motorola trunked systems, and 700 MHz systems. Currently, there is adequate communications interoperability within each of the 13 counties, but limited interoperability among the 13 counties and the State of Pennsylvania. Pennsylvania has a statewide 800 MHz system and a M/A-COM Open Sky™ System that is shared with the 13 counties in the UA. The UA uses shared channels, gateways, (15 mobile, 4 fixed), and console patches (not gateways).

Thirty-four agencies have radio caches, including 800 MHz, dual band 700 MHz and 800 MHz, UHF, and VHF High Band radios, for a total of around 583 cache radios. The Pittsburg UA is planning to use shared channels, gateways, and radio caches to improve communications interoperability among 1,400 agencies spread out over 1,200 square miles. There are no additional technology initiatives planned for improving communications interoperability at this time.

Dallas/Fort Worth, TX



Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Dallas/Fort Worth Urban Area (UA) includes the cities of Dallas, Fort Worth, and Arlington, as well as designated public safety agencies located in Collin, Dallas, Denton, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties.

Governance: *Intermediate Implementation*

Through the North Central Texas Council of Governments (NCT COG) structure, a regional communications committee has taken key steps on communications interoperability issues since its formation in October 2005. One key step has been the creation of a Regional Interoperable Communications Agreement that was recently approved by the communications committee. Dallas/Fort Worth officials indicated that they had come together to pursue regional funding; however, their communications interoperability priorities appear to be driven by available grants rather than a long-term funding strategy that would take into account diversified and sustainable funding sources. This is an issue that the area is currently addressing. With almost 300 agencies involved in interoperability efforts, it was difficult to determine whether the UA had coordinated all necessary published and active regional agreements to include all public safety organizations. Most Dallas/Fort Worth UA organizations have memoranda of understanding (MOU) in place with the state, and with federal agencies (e.g., Federal Bureau of Investigation). Dallas/Fort Worth has also faced the challenge of getting all participating organizations to adopt a regional interoperability strategic plan (beyond the operational focus of the Tactical Interoperable Communications Plan [TICP]) because of the large number of agencies. Given the large number of agencies that are included in the Dallas/Fort Worth UA, challenges exist for identifying and including all of the necessary agencies in interoperable communications activities (e.g., formalizing all partnerships in agreements, gaining acceptance on interoperable communications plans).

Recommendations:

- Continue to develop published and active agreements (e.g., MOUs) to facilitate interoperability with all public safety organizations within the UA
- Develop a regional strategic plan for communications interoperability and obtain acceptance from all participants
- Encourage the development of a regional interoperability funding strategy, including sustainable (e.g., 3 to 5 years) funding sources (in addition to grants) that address long-term communications interoperability needs
- Establish, as a priority across the UA, regional interoperability procedures and associated training that are accepted by leadership

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Dallas/Fort Worth UA TICP represents the first formal interoperable communications regional SOPs for the area. Prior to the development of the TICP, the UA had informal SOPs to facilitate regionwide communications interoperability; these distinct SOPs were combined in the TICP. However, as noted in the

TICP Peer Review, the SOPs are not standardized throughout the UA. Additionally, the UA has not identified a specific time to provide training on the SOPs. In regards to command and control practices, the UA has implemented the National Incident Management System (NIMS)/Incident Command System (ICS) more than 6 months ago across all disciplines. This short time frame for implementation could be the reason that the UA demonstrated some deficiencies in following the NIMS/ICS practices (e.g., the designation of a Communications Unit Leader did not occur until later in the exercise) during its exercise.

Recommendations:

- Standardize regional policies, practices, and procedures that can be agreed upon throughout the participating jurisdictions
- Ensure regional SOPs for command and control are NIMS/ICS-compliant
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

While multi-agency communications within a jurisdiction occur daily on the UA's shared systems, Dallas/Fort Worth officials reported that multijurisdictional/multicounty interoperability (i.e., when an agency leaves its home system) has been a challenge. As indicated in the After Action Report, there was a lack of local and regional designated interoperability talk groups during the TICP validation exercise (e.g., Arlington Police Department and Arlington Fire Department used different command channels since there was no talk groups designated for the use of unified command). In general, interoperable communications should be regularly exercised to better identify and address potential gaps, as were identified in the TICP validation exercise, which showed both technical and procedural issues with providing a coordinated response.

Recommendations:

- Ensure the correct interoperability channels are programmed into gateways and radio channel programming documentation is available (as recommended in the After Action Report as well)
- Continue to regularly test and exercise the deployment of regional communications interoperability resources to improve proficiency in their application
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

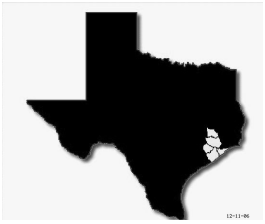
Technology Overview

The large UA uses very high frequencies (VHF) with both analog and Project 25 (P25)-compliant radio systems, ultra high frequencies for the City of Dallas, and the 800 megahertz (MHz) band with both M/A-COM and Motorola 800 MHz trunked equipment being employed. There are also several 800 MHz conventional mutual aid channels. The Department of Justice has implemented a two-channel interoperability system consisting of two repeaters—one in Dallas and one in Fort Worth—which are VHF P25 compatible. In addition, many gateways and consoles are available for patching communications resources in the UA.

Because of frequency limitations in the Dallas/Fort Worth UA, not many changes can be made to interoperable communications in the UA at this time. Eventually, the NCT COG would like to see the expansion of TICP to surrounding counties and smaller jurisdictions, specifically at schools and universities, hospitals, and secondary public safety answering points. The NCT COG hopes to create more mutual aid talk groups on the Fort Worth 800 MHz trunked system to be used with Tarrant and Denton counties and possibly to be implemented during the upcoming rebanding of the 800 MHz public safety spectrum.

Houston, TX

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Houston Urban Area (UA) includes the City of Houston and five surrounding counties: Harris, Montgomery, Fort Bend, Brazoria, and Galveston.

Governance: *Intermediate Implementation*

The Houston Urban Area Working Group Executive Committee established the Regional Interoperable Communications Committee (RICC). The RICC has both technical and operations working groups and advises the Executive Committee on interoperable communications issues. Houston officials indicated that the RICC is formalized; however, decision-making authority in the governance structure is not clearly defined in the Tactical Interoperable Communications Plan (TICP). Houston officials note that agreements governing communications interoperability among agencies exist (e.g., memoranda of understanding, channel plans), but it appears that many of these partnerships are informal and not documented. Strategic planning is particularly critical for the Houston UA as the region upgrades its 800 megahertz (MHz) system and the City migrates its current system to a 700 MHz. The region indicates that monthly meetings are held to coordinate this migration and to develop a broader strategic plan. However, such a plan has not yet been published. In some cases, individual jurisdiction leadership has made interoperability a funding priority (as suggested by the City of Houston's approval of the initial 25 percent of the cost of its new radio system). However, other jurisdictions appear to have been less successful in developing and pursuing long-term funding strategies beyond grant programs. This issue would be best addressed by developing a strategic plan that includes a longer term funding strategy to obtain diversified and sustainable funding for regionwide interoperable communications solutions.

Recommendations:

- Establish a formal charter to clarify roles and responsibilities for all local, state, and federal participants in the governance structure and expand the decision-making group's role to focus on communications interoperability policy and operations
- Document and formalize agreements (e.g., participate in statewide efforts in developing memoranda of understanding) among all participating agencies to support partnerships on regional interoperability
- Dedicate an individual within the UAWG RICC to manage and update agreements in place
- Align local and state strategic planning efforts by continuing the development and documentation of a strategic plan (beyond the operational focus of the TICP) for approval, acceptance, and adoption by all participating agencies to ensure that regionwide interoperability needs are met
- Establish interagency communications as a requirement for new systems in the area through a regionwide strategic plan
- Develop and implement a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding beyond only allocating resources for individual systems
- Champion a governance structure that would more fully support a regional strategic plan
- Involve senior government leadership broadly across the UA in interoperability and encourage long-term (e.g., 3 to 5 years) regional funding plans

Standard Operating Procedures (SOP): *Established Implementation* 

The TICP provides the first formal regional communications SOPs for the Houston UA. Prior to the development of the TICP, the UA had informal SOPs among jurisdictions, but the documentation reviewed does not indicate whether the informal SOPs were specifically for regional interoperable communications. The UA has taken steps, including participation in the TICP Implementation Workshop, to distribute these newly established policies. In regards to command and control procedures, the Houston UA has implemented the National Incident Management System (NIMS)/Incident Command System (ICS) as the official incident response protocol through an executive order. Additionally, the UA has ensured that mandated training and certification is completed. Exercise evaluators indicated that the UA fully demonstrated the use of NIMS/ICS by properly implementing the communications unit and Communications Unit Leader position SOPs.

Recommendations:

- Document and distribute regional communications interoperability SOPs (beyond the TICP), and put them into practice through regular training (e.g., in-service refreshers and basic training courses), exercises, and daily usage
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Established Implementation* 

Multi-agency communications in the Houston UA is primarily provided through two major shared systems (Harris County 800 megahertz [MHz] and City of Houston ultra high frequency [UHF]). Because of the systems' disparate bands, communications personnel regularly and proficiently use a permanent fixed gateway to link the systems. In carrying out the TICP validation exercise, the Houston UA showed effective command and line-level communications across multiple jurisdictions and disciplines. The UA listed numerous state and federal agencies in the TICP that were not present during the TICP validation exercise, the exclusion of which limited the demonstration of effective interoperability solutions among agencies at all levels of government. Including broader levels of government and public support disciplines would help ensure increased familiarity of interoperability resources across all response agencies.

Recommendations:

- Continue to include interoperability as a component for all future exercises and day-to-day activities
- Consider including additional state and federal agencies (e.g., Customs and Border Protection, U.S. Secret Service) in future exercises and day-to-day use

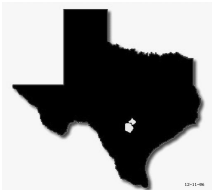
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The UA identified two shared systems in the area, with the Harris County 800 MHz system supporting the most users. The City of Houston operates on a large, conventional, UHF system and routinely communicates with other agencies on different radio systems. Several mobile gateways and many channels can be connected via console patches, and radio caches are available in the area for interoperability. The Harris County 800 MHz system is beginning an upgrade to a Project 25 700/800 MHz integrated voice and data system. The current system is more than 16 years old and must be replaced. The City reviewed several options for the current UHF system and is presently in the preliminary planning stages for its migration to 700 MHz.

San Antonio, TX

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

The San Antonio Urban Area (UA) includes the City of San Antonio, Bexar County, Comal County, and the cities and jurisdictions within those counties.

Governance: *Intermediate Implementation*

The San Antonio Urban Area Working Group (SUAWG) was established in October 2005 and has a formalized communications subcommittee. The UA reports a mix of formal and informal partnerships among the public safety organizations in the area, including a regional mutual aid agreement that involves 71 agencies and the U.S. Department of the Army. The San Antonio UA is developing a strategic plan for interoperable communications; however, planning efforts that were initialized in 2004 have yet to yield a strategic plan acceptable to area first responders. The UA established a shared system before receiving Urban Area Security Initiative funds and has given some consideration to regional interoperability needs through Department of Homeland Security grant funding. The UA noted that agencies within the UA develop and maintain their own budget and procure communications interoperability equipment with consideration for regional interoperable communications. The documentation does not note, however, whether there is a regionwide plan to budget for interoperable communications. It would be beneficial for the UA to develop a longer term funding strategic plan to identify diversified and sustainable funding for recurring and lifecycle costs. San Antonio officials indicated that the field leaders in SUAWG have been directly involved in providing support for communications interoperability efforts; involvement of senior executive leadership in the UA is not evident from available documentation.

Recommendations:

- Consider distributing a formal charter to all participating agencies to clarify roles and responsibilities for all local, state, and federal participants in the governance structure
- Establish processes to develop and review agreements (e.g., usage agreements, memoranda of understanding) at least every 3 to 5 years and after significant events or upgrades to ensure the agreements are up-to-date and consistent with current needs
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the Tactical Interoperable Communications Plan [TICP]) with participant approval, adoption, and acceptance that takes into account a long-term communications funding strategy (in addition to grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Identify long-term (e.g., 3 to 5 years) sustainable funding for communications interoperability in addition to grants
- Identify a champion(s) that would more fully support a regional strategic plan
- Involve senior government leadership broadly across the UA on interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The San Antonio UA incorporated existing communications interoperability policies, practices, and procedures into the TICP. The UA has taken some steps to distribute and provide training on the SOPs (e.g., distributed through the TICP Implementation Workshop, made applicable SOPs available with radio caches and gateways) to most of the public safety organizations in the area; however, the UA did not report directly providing the SOPs to participating TICP agencies and dispatch centers. Despite having pre-existing SOPs distributed and participating agencies trained on their use, participants experienced some procedural problems (e.g., missing radio cache battery chargers, patching problems, initial command identification confusion) during the TICP validation exercise. The San Antonio UA implemented the

National Incident Management System (NIMS)/Incident Command System (ICS) within the last year. Although the UA's NIMS/ICS implementation efforts are not yet well established, it is evident that considerable effort is being made to attain NIMS compliance. The State of Texas mandated further NIMS/ICS training in 2005, and most of the first responder community has already participated.

Recommendations:

- Ensure that the TICP is updated and aligned with regional communications interoperability SOPs (e.g., include a backup plan for gateway/console patch equipment, review operational talk groups that should be included as shared talk groups)
- Develop and distribute regional communications interoperability SOPs (beyond the TICP) and put them into practice through regular training (e.g., in-service refreshers and basic training courses), exercises, and usage
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The San Antonio UA demonstrated some ability to use available communications interoperability solutions. For example, the After Action Report indicated that the radio cache worked satisfactorily during the TICP validation exercise and was used for most participating agencies that did not otherwise have access to the 800 megahertz (MHz) radios that could communicate on the primary shared system. A remote incident command vehicle was also used effectively during the TICP validation exercise. Although the UA reported frequent use of shared channels, gateways, and shared systems, the TICP validation exercise highlighted some of the deficiencies in San Antonio UA's first responders' ability to adequately demonstrate the proper implementation of available interoperability solutions. Examples of these deficiencies include the inability of participants to effectively connect two systems through a shared channel, a console patch failure causing an interruption in communications, and radio cache maintenance and battery management issues. In addition, the UA used a console patch to connect two systems instead of using shared channels identified in the TICP.

Recommendations:

- Regularly test and exercise deployment of regional interoperability resources (e.g., shared channels, gateways) to improve proficiency in their use
- Consider adding communications interoperability as a component of all future exercises

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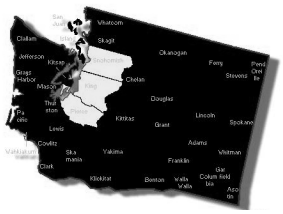
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The San Antonio UA has two major 800 MHz M/A-COM Enhanced Digital Access Communications System trunked systems. The City of San Antonio and Bexar County share one system, and the counties of Bexar, Guadalupe, and Comal share the Live Oak Police Department system. Other local agencies use very high frequency systems, and many public works agencies use the Lower Colorado River Authority 900 MHz system, which covers many counties. Many interoperability gateways are available in the UA that can be used for interoperable communications. The SUAWG is working to develop improved communication methods and procedures to improve interoperable communications with the military. Currently, the military has at least two dissimilar communication systems that are not connected to local shared systems. Previous incidents requiring interoperable communications among military and non-military agencies have required use of cached radios and/or deployment of mobile gateways.

Seattle, WA

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The Seattle Urban Area (UA) includes the City of Seattle, King County, portions of Pierce County serviced by the Tacoma Regional Network, and Snohomish County.

Governance: *Intermediate Implementation*

Governance for regional communications in Seattle is overseen by the Tri-County Voice Communications Interoperability Oversight Committee. The committee appears to be operating well and is formalized, but it is not clear that authorities and responsibilities have been established (through a charter) or that the committee has direct multijurisdictional representation from users beyond system operators. Partnerships among agencies are provided through a mix of informal and formal agreements, and a strategic plan for regional interoperability (beyond the operational focus of the Tactical Interoperable Communications Plan [TICP]) has not been developed. Through an Urban Area Security Initiative grant, some regional consideration has been given to regionwide communications interoperability needs (e.g., procurement of a communications vehicle used in the area), as well as long-term planning for grant funding. While this planning for the use of grants is beneficial, it does not address the need to diversify sustainable funding sources to provide for recurring and lifecycle costs. Developing a strategic plan for interoperable communications will require strong leadership. From the available documentation, it is unclear to what extent local government leaders in the area are involved in supporting communications interoperability politically or fiscally.

Recommendations:

- Establish a formal charter to clarify roles and responsibilities for all local, state, and federal participants within the governance structure
- Document and formalize agreements (e.g., memoranda of understanding) among all participating agencies to support partnerships on regional interoperability
- Develop and document a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Develop, document, and implement a regional long-term interoperability plan with sustainable funding in addition to grants
- Identify a champion(s) to establish a governance structure that more fully supports a regional strategic plan
- Involve senior government leadership broadly across the area on interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The Seattle UA has incorporated all previous regional SOPs (some dating back more than a decade) into the area's TICP. Although most UA agencies assisted in TICP development and have indicated a high-level of commitment to the SOPs, it appears the recently established policies, practices, and procedures (established through TICP process) have not been disseminated to the necessary agencies. However, the UA was still

able to effectively use the SOPs during the TICP validation exercises. Participants experienced some minor deficiencies (e.g., Northgate did not observe the "priority" order identified in the TICP to request interoperable communications equipment). The Seattle UA implemented SOPs in compliance with the National Incident Management System (NIMS)/Incident Command System (ICS) more than 1 year ago, and indicated that 95 percent of personnel had participated in NIMS/ICS training. During the TICP validation exercise, proper adherence to effective command and control SOPs was successfully demonstrated by the Northgate communications unit while the Kilroy Towers communications unit experienced problems (e.g., resource request protocols, Communications Unit Leader integration).

Recommendations:

- Demonstrate the use of regional communications interoperability SOPs during future exercises (e.g., radio cache, shared channels)
- Ensure that regional communications interoperability SOPs (beyond the TICP) are fully developed through a comprehensive interoperability plan beyond first responders (e.g., U.S. Coast Guard), and provide training on these SOPs
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The Seattle UA regularly uses the four 800 megahertz (MHz) systems in the area for multi-agency and, to a lesser extent, multidiscipline communications. In addition, the UA uses shared channels and gateways on a daily basis. As noted by evaluators, all means of interoperability (e.g., radio caches, gateways, shared channels, shared systems) were successfully used and demonstrated in the area. For example, during the TICP validation exercise a Pierce County Sheriff arrived on scene and needed to communicate with the law branch, the staging manager recognized the need for a cached radio and identified a radio for the Sheriff. However, some minor problems were also encountered with the use of gateways and radio programming during the exercise (e.g., patch problems, participant instructed to tune to a channel not programmed on his radio).

Recommendations:

- Regularly test and exercise deployment of regional communications interoperability resources to improve proficiency (e.g., radio cache, shared channels)
- Practice multijurisdictional and multidiscipline communications during future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Seattle UA currently uses four Motorola 800 MHz SmartZone™ 4.1 systems for communications in King County, Snohomish County, Pierce County, and the Port of Seattle. Communications among these radio systems are established using the Tri-County Regional Interoperability System (TRIS) fixed gateway console patching network. The UA also uses two other systems. One is a statewide very high frequency conventional system used in conjunction with the Washington State Patrol. The other is an 800 MHz EF Johnson trunked system that connects them to the Washington Department of Transportation. Future plans include installation of infrastructure to support a repeated simulcast 800 MHz ICALL/ITAC system. The present capabilities will serve the Seattle UA for many years to come. Currently, the primary UA concern is 800 MHz rebanding and how that will take place.

Milwaukee, WI

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The Milwaukee Urban Area (UA) includes the City of Milwaukee, Milwaukee County, Washington County, and Waukesha County.

Governance: *Intermediate Implementation*

The Milwaukee Urban Area Working Group includes local, state, and federal participants (e.g., public health, State Highway Patrol, and Wisconsin Army National Guard). Its Communications Subcommittee is ad hoc, but is codified in the Tactical Interoperable Communications Plan (TICP). From the information provided, it is unclear whether the subcommittee includes active state and federal agency participation, which would demonstrate a more advanced degree of governance maturity. A mix of formal and informal agreements exists within the area, and the UA is working to expand the formal partnerships (e.g., National Guard SOP is currently under review by the Milwaukee Police Department). The continued development of documented agreements would support the formalization of these partnerships to ensure clear roles and responsibilities relating to communications interoperability issues and decisions. The Milwaukee UA is beginning to develop a strategic plan for interoperable communications. Through federal and state grants, the organizations within the UA give consideration to regional interoperable communications while procuring equipment and developing budgets. However, there is no longer term plan for sustainable funding to meet interoperable communications goals. Although the local leadership is strong (demonstrated through apportioned funding requests), there are regional leadership differences (limited city and county cooperation) that affect political and fiscal support.

Recommendations:

- Expand Communications Subcommittee membership to formally include public support, state, and federal agencies (e.g., U.S. Coast Guard) and document roles and responsibilities as part of the group
- Reference all applicable agreements (e.g., memoranda of understanding [MOU], intergovernmental agreements) in the TICP and store them in an accessible format
- Document and formalize agreements (e.g., signed MOUs with defined roles and responsibilities) among all participating agencies to support partnerships on regional interoperability
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (in addition to grants)
- Consider outreach to expand participation in strategic planning process
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Initiate the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) sustainable funding that is consistent with the strategic plan
- Continue to broaden and champion a governance structure that will support regional communications interoperability and involve senior regional government leadership in long-term funding plans

Standard Operating Procedures (SOP): *Intermediate Implementation*

The SOPs included in Milwaukee's TICP represent the UA's first regional consensus plan for interoperable communications. Although current regional communications interoperability SOPs are limited, the area plans to train on and has made an effort to disseminate them to the participating organizations. According to the TICP validation Exercise Evaluation Guide, exercise participants attempted to use both shared channels and fixed gateways, but no area-

specific procedures are documented in the TICP for these interoperability solutions. The UA began implementing National Incident Management System (NIMS)/Incident Command System (ICS) less than 1 year ago, which implies that the UA is still in the earlier stages of implementing NIMS/ICS policies and procedures. Despite the short period of time during which NIMS/ICS procedures have been in place, the UA demonstrated process familiarity during the TICP validation exercise. During the course of the exercise, it was noted that participants would have used commercial cellular technology (i.e., "NEXTELs") in lieu of shared channels in a real-life response if radio reception were poor; there are no SOPs in the TICP addressing the use of cellular commercial technology.

Recommendations:

- Continue to develop and distribute regional communications interoperability SOPs (beyond the TICP) and put them into practice through regular training, exercises, and usage (e.g., written SOPs needed for shared channels and gateways)
- Document, distribute, and verify all points of contact for each agency communications center
- Consider developing policy on use and limitations of commercial services (e.g., cellular telephones)
- Consider scheduling a regular review and update process for policies and procedures
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Established Implementation* 

The area frequently uses its available means of interoperable communications (i.e., radio cache, gateways, shared channels, and shared systems). Additionally, officials in the area report proficiency during real-world events (e.g., vehicle pursuit crossing city–county borders). During the TICP validation exercise, the participants were able to establish interoperable communications with minimal difficulty (e.g., poor reception on shared channels, do not have common talk groups for fire and police). However, because there were no state and federal participants in the exercise, the area did not fully demonstrate interoperable communications among local, state, and federal agencies in the area.

Recommendations:

- Regularly test and exercise the deployment of regional interoperability resources (e.g., Milwaukee law enforcement and fire do not have common talk groups) to improve proficiency
- Consider including additional state and federal agencies (e.g., Federal Bureau of Investigation) in future exercises and day-to-day use
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The UA's mixture of very high frequency, ultra high frequency, and 800 megahertz (MHz) communications systems support most agencies in the area. Milwaukee and Waukesha County have individual, trunked, Motorola® SmartNet™ Type II, 800 MHz communications systems. The City of Greenfield has a Motorola, single site, trunked communications system. The City of Milwaukee currently uses a conventional system that supports both the Milwaukee Police and Fire Departments. The area's main Public Safety Answering Points can make console patches among supported agencies' channels and communication systems. Milwaukee County is building out a Project 25 communication system that could replace the old county system. The City of Milwaukee is installing a M/A-COM OpenSky™ system to initially support the city's mobile data needs and later support city agencies with mission-critical voice communications.

APPENDIX B: Metropolitan Area Scorecards

The tables included in this appendix outline the results developed for Standard Operating Procedures (SOP), Usage, and Governance for the 22 metropolitan areas and 5 territories that developed and exercised TICPs. The results represent the summary assessment of each Continuum element taking into account critical "sub-elements" identified in the Interoperability Maturity Measurement Model developed as part of the *SAFECOM National Baseline Assessment*. The Baseline approach to defining the aspects of communications interoperability was leveraged to ensure consistency in the measurement models applied to various Department of Homeland Security (DHS) initiatives.

In the case of SOPs, the sub-elements include: 1) policies, practices, and procedures and 2) command and control. Usage focuses on the frequency of use and familiarity with interoperability solutions. Governance focuses on five core sub-elements, including: 1) decision-making groups, 2) agreements, 3) strategic planning, 4) interoperability funding, and 5) leadership.

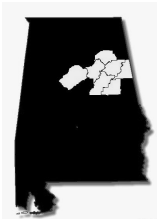
Each score can be defined as early, intermediate, established, or advanced implementation of the given element. Below, general definitions for each score are provided.

Elements	*Early Implementation*	*Intermediate Implementation*	*Established Implementation*	*Advanced Implementation*
Standard Operating Procedures (SOP)	Region-wide SOPs were developed and formalized for the first time through the TICP, but have not been disseminated to all included agencies. Some elements of NIMS/ICS procedures for command and control are in place, but understanding varies among agencies and was an area of difficulty during exercise(s).	Some existing SOPs were incorporated in the TICP and steps have been taken to institute these interoperability procedures among included agencies. Formal NIMS/ICS procedures are in place, but understanding varies among agencies leading to some issues during the exercise(s).	Existing regional SOPs were reviewed and included in the TICP, and are in use by included agencies. NIMS-compliant command and control has been instituted by all agencies and disciplines in the region. Despite minor issues, all SOPs were successfully demonstrated during exercise(s).	Regional SOPs, reviewed through the TICP process, are in place and regularly used by included agencies. NIMS procedures are well established among all agencies and disciplines. All procedures were effectively utilized during exercise(s).
Usage	Interoperable communications solutions are rarely used for multi-agency communication and difficulties were encountered in achieving interoperability during exercise(s).	First responders use interoperability solutions regularly and demonstrated the ability to achieve multi-agency communications despite some challenges during exercise(s).	First responders use interoperability solutions regularly and easily. The region demonstrated successful multi-agency (which may have included state, federal, and support organizations) communications during exercise(s).	First responders regularly and seamlessly utilize interoperability solutions. The region demonstrated successful multi-agency communications during exercise(s), including state, federal and support organizations.
Governance	Decision making groups are informal, and do not yet have a strategic plan in place to guide collective communications interoperability goals and funding.	Some *formal* agreements exist and *informal* agreements are in practice among members of a decision making group; regional strategic and budget planning processes are beginning to be put in place.	Formal agreements outline the roles and responsibilities of a decision making group, which has an agreed upon strategic plan that addresses sustainable funding for collective, regional interoperable communications needs.	Decision making bodies proactively look to expand membership to ensure representation from broader public support disciplines and other levels of government, while updating their agreements and strategic plan on a regular basis.

It should be noted that many of the metropolitan areas have progressed in developing interoperable communications capabilities past the point at which the information for the scorecards was collected. DHS recognizes the ongoing work in each area and appreciates the participation that areas had in providing feedback and comments to their scorecards. To the extent possible, comments were incorporated into the scorecards included in this appendix.

Birmingham (Alabama)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Advanced Implementation*

Alabama designated the City of Birmingham as its metropolitan area (area), which includes Calhoun, Clay, Cleburne, Etowah, Jefferson, St. Clair, and Talladega counties. Major cities located within this area include Birmingham, Anniston, Gadsden, Pell City and Talladega.

Governance: *Intermediate Implementation*

Birmingham as a whole has developed a fairly robust governance structure for the support of its communications interoperability. There are multiple governing bodies listed as responsible for creating and implementing the Tactical Interoperable Communications Plan (TICP) (e.g., Tactical TICP Governance Group, Communications Work Group, and the Alabama Department of Homeland Security [ADHS] Region 7 Interoperability Team [R7IT]). This many governance bodies can cause confusion, especially in cases like Birmingham in which the roles and responsibilities among them are undefined. It also appears the governance groups require further regional cooperation to ensure locally driven decision-making (e.g., the ADHS seems to have ultimate decision-making authority, although review power and implementation responsibility fall to the local R7IT) and complete participation from agencies in the area (e.g., Jefferson County's limited participation in the regional TICP). The area has recently developed formal agreements supporting a mix of formal and informal partnerships among the area's public safety organizations. These agreements mark a positive step in moving towards regional cooperation. Although agencies in the area set budget priorities with communications interoperability goals, the area relies mainly on federal grant monies with support from local resources. The area reports developing a strategic plan, which may be an amalgamation of the two disparate plans resulting from the combination of the original two TICPs submitted for the area. According to the TICP Peer Review, Jefferson County initially wrote its own plan, separate from the Region 7 plan. The area receives funding from both federal grants and local resources, and appears to budget with consideration for regional interoperability goals. Alabama's leadership has demonstrated political and fiscal support for public safety interoperability by obtaining federal grant funds, without any designated Urban Area Security Initiative sites in the state, but the level of participation and support from local leaders as champions for achieving communications interoperability across the area is unclear.

Recommendations:

- Clarify the decision-making authority and implementation responsibilities of the governing bodies (e.g., R7IT, Region 7 Homeland Security Task Force, Communications Work Group) through a formalized charter and ensure local first responder participation in groups with decision-making authority
- Implement newly developed regional interoperability agreements (e.g., memoranda of understanding), involve all participant agencies, and review these agreements at least every 3 to 5 years and after significant events or upgrades to ensure they address current needs
- Consider distributing a unified regional strategic plan (beyond the operational TICP), including Jefferson County, with participant approval, adoption, and acceptance that takes into account a long-term communications funding strategy (beyond grants)
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Consider the direct involvement of an executive-level local official(s), with political and fiscal authority to specifically focus on interoperable communications

Standard Operating Procedures (SOP): *Established Implementation* 

Birmingham was successful in incorporating and updating existing policies and procedures (developed in late 1990s) into the submitted TICP. The TICP is very detailed for each county in the area. However, it appears that the area is developing multiple TICPs (one for each county), rather than a consolidated regional plan. It is feasible that having such distinct county-specific plans could complicate rather than simplify attempts to achieve interoperable communications across the area. The area has plans in place to disseminate the various county procedures throughout the area once completed. The area also reports broad adoption of the National Incident Management System (NIMS)/Incident Command System (ICS). The real-world exercise used to test the TICP identified some procedural gaps in command and control (e.g., inconsistent updating of ICS 205 forms, use of 10-codes rather than plain language), which leads to the conclusion that full adoption of the SOPs is still developing.

Recommendations:

- Once completed, distribute unified regional interoperability SOPs (beyond those compiled in the TICP), and put them into practice with all first responders (e.g., emergency medical services [EMS]) through regular training (e.g., in-service refreshers and basic training courses), exercises, and usage
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) and to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Advanced Implementation* 

Birmingham reports daily use of its available means of interoperable communications (e.g., gateways, shared channels, and shared systems) and was effective in establishing interoperable communications during its exercise. Because the TICP validation exercise was held in conjunction with a real-world event, there were artificial constraints placed on the exercise that did not allow robust testing of participants' familiarity with interoperable communications equipment. Participants across all disciplines and levels of government were involved in the exercise (e.g., Federal Bureau of Investigation, Sheriffs, EMS, and Fire) and were able to establish interoperable communications with available interoperability equipment and solutions.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Birmingham area has five shared radio systems supporting public safety operations. Systems operating in the area include one 800 megahertz (MHz) M/A-COM, Enhanced Digital Access Communications System, three 800 MHz Motorola SmartZone™ systems, and one ultra high frequency statewide repeater system. Both Birmingham and Jefferson County use 800 MHz Motorola SmartZone systems. In addition, the area routinely relies on the SouthernLINC commercial wireless system to provide law enforcement and public safety officials with voice and data wireless communications. Regional interoperability is achieved through the use of shared systems, shared channels, gateways, and cached radios. The Interoperable Communications Technical Assistance Program is not active in the Birmingham area, and information regarding their current and future communications initiatives is currently unknown.

Anchorage (Alaska)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Advanced Implementation*

Alaska designated the Municipality of Anchorage as its metropolitan area (area).

Governance: *Established Implementation*

Anchorage's Interoperable Communications Steering Committee (ICSC) was established to make communications decisions related to funding, policy, training, exercises, and compliance. The ICSC has an Operations Working Group and a Technology Working Group with representation from local, state, and federal agencies. Anchorage should be commended for having broad representation (local, state, and federal) on its Alaska Land Mobile Radio (ALMR) system; however, greater federal representation of system users may be required in the ICSC. The public safety agencies in Anchorage have some formal and informal agreements among the jurisdictions in the area. Anchorage has a formal strategic plan that incorporates interoperable communications and is accepted by participating agencies. It is unclear, however, whether the area regularly revises the plan or whether the plan is aligned with a long-term funding strategy. The area has been successful in acquiring federal grants and issuing bonds to execute parts of its funding strategy, which should be incorporated into a longer-term funding plan (i.e., covering more than 2 years). Anchorage's leadership has demonstrated political and fiscal support through its issuance of bonds dedicated to communications interoperability.

Recommendations:

- Investigate the possibility of more formal involvement of state and federal organizations in the decision-making group (e.g., consider conducting executive-level tabletop exercise), and document roles and responsibilities, as appropriate
- Document and formalize agreements (e.g., memorandum of understanding) among all participating agencies to support partnerships on regional interoperability
- Establish a process to review the strategic plan annually to ensure that interoperable communications goals are met
- Align local and statewide strategic planning efforts to ensure the regional interoperability needs are met
- Continue to support and enhance the regional interoperability funding strategy and methods, including additional long-term (e.g., 3 to 5 years) funding sources that align with strategic planning efforts

Standard Operating Procedures (SOP): *Established Implementation*

In creating the Tactical Interoperable Communications Plan (TICP), the area built on the existing TriBorough Regional Mutual Aid agreements. Since the completion of the TICP, however, Anchorage has yet to disseminate the new regional SOPs to all included organizations. Not doing so could potentially cause confusion should there be any differences in the pre-existing SOPs upon which the TICP is built. The National Incident Management System (NIMS)/Incident Command System (ICS) was implemented more than 1 year ago in the area, and all first responder agencies are included in the practice and training. During the TICP validation exercise, the area was successful in demonstrating command and control and the Communications Unit Leader (COML) responsibilities. For example, a unified command was quickly

created with an incident commander, and the COML was designated and his role communicated to all exercise participants. The COML completed, updated, and distributed the ICS Form 205, which is the incident radio communications plan.

Recommendations:

- Ensure all regional interoperability SOPs are incorporated into the TICP and distributed to participating agencies
- Regularly practice SOPs to increase proficiency in implementation
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* ●

The public safety agencies in the area have demonstrated a clear dedication to implementing interoperable communications solutions and a familiarity with the area's current technology. Interoperability solutions are used on a daily basis and frequently during task force events. During the TICP validation exercise, the participants effectively used their interoperable communications assets across all levels of government and types of support disciplines (e.g., Anchorage Water and Wastewater Utility, Federal Aviation Administration). They distributed and provided instructions on the radio cache; created a patch using a gateway between Fire and Police; and demonstrated familiarity with the area's shared systems. For example, during the TICP validation exercise, a patch was set up between Anchorage Fire Department and Police Department that served as the command channel for unified command to emergency operations center communications. Additionally, the HearNet shared channel was used to communicate among hospitals. This channel is tested on a weekly basis, which is a strong indication of familiarity and frequency of use.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The State of Alaska designed a statewide very high frequency, Project 25 (P25), trunked radio communications system several years ago in cooperation with the Department of Defense (DoD). This system, known as the ALMR system, is being built slowly as funding becomes available and includes local, state, federal, and DoD users. The largest jurisdiction of this area, the Municipality of Anchorage, is proceeding with its own development and installation of an 800 megahertz, P25, trunked system.

The State of Alaska and DoD plan to connect to the Anchorage system via a gateway. This will increase the potential for interoperability in areas that enjoy overlapping signal coverage with these two systems.

Little Rock (Arkansas)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

Arkansas designated Little Rock as its metropolitan area (area), which includes Pulaski County and the cities of Cammack Village, Jacksonville, Little Rock, Maumelle, North Little Rock, Shannon Hills, Sherwood, and Wrightsville.

Governance: *Advanced Implementation*

The Little Rock Metropolitan Area Working Group developed the Tactical Interoperable Communications (TICP) and includes operations and technical subcommittees for interoperable communications. The area has exclusively formal agreements (e.g., mutual aid agreement with State Emergency Management Department) among public safety organizations, and a review process in place to regularly update these agreements every 3 to 5 years. Although strategic planning efforts have been underway since 1996, the area does not yet have a published strategic plan for regional interoperability. Through a locally funded bond and federal and state grants, jurisdictions procure equipment and develop budgets with consideration for the regional interoperability; fiscal priorities have been clearly articulated in area's municipal bond. In addition to federal grant monies, the area is consistently awarded several state grants, and a voter-approved bond program is in place to fund communications interoperability equipment, training, and operations. The senior level leaders in the area serve as interoperability advocates and act to ensure continued political and fiscal support.

Recommendations:

- Reference all applicable agreements (e.g., memoranda of understanding, intergovernmental agreements) in the TICP and store them in an accessible format
- Develop, document, and implement a regional strategic plan (beyond the operational TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (beyond grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Define funding strategy for regional sustainable funding sources (beyond bonds and grants) to cover lifecycle and recurring costs to operate the area's interoperability assets

Standard Operating Procedures (SOP): *Established Implementation*

The Little Rock TICP consolidated the existing interoperable communications SOPs (e.g., state and local mutual aid agreements) into a regional plan. Since these SOPs were already well established and used frequently, the public safety agencies in the area were well positioned to adopt the TICP. The TICP has been disseminated to dispatch centers, but not to all included agencies in the area. In the TICP validation exercise, despite a minor issue with radio channel designation, the area was largely successful in the use of its documented procedures. The Little Rock area has adopted National Incident Management System (NIMS)/Incident Command System (ICS) and has been implementing it within the last year. During the exercise, participants successfully demonstrated familiarity with NIMS/ICS (e.g., unambiguous designation

of Communications Unit Leader, ICS Form 205 developed, updated and distributed, clear establishment of unified command).

Recommendations:
- Develop regional training policies and requirements for inclusion in the TICP
- Ensure consistent reference in the TICP regarding "NIMS is recommended" and "NIMS is required"
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The area frequently uses its interoperable communications solutions (i.e., shared channels and shared systems) frequently for task force and mutual aid incidents. Additionally, officials in the area report proficiency during real-world events (e.g., use of shared channels during river rescues). During the TICP validation exercise, the participants were able to establish interoperable communications despite some minimal technical difficulty (e.g., inconsistent naming conventions for shared channels caused confusion). While the exercise met the stated requirements, it did not provide the opportunity to demonstrate interoperable communications with federal agencies in the area. The area is encouraged to build on its local exercise success by further integrating state, federal, and support agencies in future events.

Recommendations:
- Continue to involve state and federal agencies (e.g., State Police, Federal Bureau of Investigation) in day-to-day events and future exercises
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

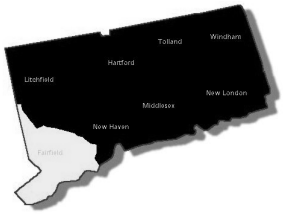
Technology Overview

The area has one 800 megahertz, Motorola communications system that is shared by most agencies. However, interoperable talk groups have yet to be programmed into all radios, and different disciplines and jurisdictions have different profiles. No gateways are available, and the primary means of interoperable communications currently consists of shared conventional channels (e.g., National Public Safety Planning Advisory Committee channels and Hospital Emergency Administrative Radio channels).

The Little Rock area is adding talk groups to its fleet map to increase interoperability. Plans at the state level are unknown, although personnel from both the state and Little Rock have participated in the TICP validation exercises to gain insight into interoperability options and procedures.

Connecticut Region 1

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

Connecticut's metropolitan area, also known as Region 1, includes the following jurisdictions: Bridgeport, Darien, Easton, Fairfield, Greenwich, Monroe, New Canaan, Norwalk, Stamford, Stratford, Trumbull, Weston, Westport, and Wilton.

Governance: *Intermediate Implementation*

Connecticut's Region 1 Communications Working Group reports to the Emergency Support Function II communications subcommittee, and includes local, state, and federal agencies within the area (e.g., transportation, public health, state police, U.S. Coast Guard, Federal Bureau of Investigation). Although it is still early in the regional coordination process, the Region 1 is taking steps toward formalizing partnerships and written agreements (e.g., memorandum of understanding [MOU]) among the area's organizations. The area has been involved in strategic planning efforts but does not yet have a formalized strategic plan for regional interoperable communications, which prevents their alignment to collective, regional interoperable communications goals. Through both local resources and federal grants, organizations within the area develop their budgets and procure equipment with consideration for interoperability across the area; sustainable funding for interoperability solutions though has not been defined. The leadership in the Region 1 appears to be providing the needed level of political and fiscal support for regional interoperable communications; the governor has issued an executive order for interoperability, and some local financial resources have been dedicated to funding interoperability equipment and solutions.

Recommendations:

- Establish the Region 1 Communications Working Group through a formal charter and document roles and responsibilities of all participating agencies as part of the group
- Reference by date, title, or document number, all applicable agreements (e.g., MOUs, intergovernmental agreements) in the Tactical Interoperable Communications Plan (TICP) and store them in an accessible format
- Document and formalize agreements (e.g., signed MOUs with defined roles and responsibilities) among all participating agencies relating to regional interoperability
- Establish a regular review process to ensure that agreements remain current and relevant
- Develop, document, and implement a regional strategic plan (beyond the operational TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (beyond grants)
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Initiate the development and implementation of a regional approach to long-term (e.g. 3 to 5 years) sustainable funding that is consistent with the strategic plan

Standard Operating Procedures (SOP): *Established Implementation*

Region 1 incorporated existing policies and procedures into the TICP. Since these SOPs were already well established and used frequently, the public safety agencies in the area were well positioned to adopt the

TICP. The area has taken steps to disseminate these SOPs (e.g., distributed to all included organizations and dispatch centers, held the TICP Implementation Workshop) to also ensure their swift adoption. During the TICP validation exercise overall, participants were able to demonstrate familiarity in executing their SOPs, but experienced a few minor procedural problems. The Region 1 began implementing National Incident Management System (NIMS)/Incident Command System (ICS) less than 1 year ago, which implies that the area is still in the earlier stages of implementing NIMS/ICS policies and procedures. Despite the short time frame for implementation, the area has included both first responders and other public safety organizations (e.g., public health) in the implementation and training. During the exercise, participants were able to demonstrate familiarity with NIMS/ICS, but did not demonstrate proficiency in all areas reviewed during the exercise (e.g., ICS Form 205 not distributed).

Recommendations:
- Update the TICP to incorporate all available interoperable communications equipment (e.g., inconsistencies with gateways in the TICP)
- Continue to regularly review and update policies and procedures
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

---

Usage: *Established Implementation* 

The Region 1 reports regular use of its available means of interoperable communications (e.g., shared channels, gateways, shared systems) in day-to-day operations. Additionally, officials in the area reported demonstrated success during real-world events in the area (e.g., multijurisdictional pursuit of a suspect). During the TICP validation exercise, evaluators indicated that Region 1 responders did a "good job" of establishing tactical interoperable communications between both local and regional responders. However, during the exercise users did not understand the limitations of their shared channels.

Recommendations:
- Regularly test and exercise deployment of regional interoperability resources to improve proficiency (e.g., radio cache, shared channels)
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Fairfield County consists of 14 towns and cities with at least 26 different public safety radio systems. The only interoperability among public safety agencies in the area is the 800 megahertz (MHz) ITAC/ICALL channels and the Statewide Tactical On-Scene Communication System (STOCS). STOCS, which provides shared channels across the very high frequency, ultra high frequency, and 800 MHz bands, had not been fully implemented at the time of the TICP validation exercise.

The State of Connecticut is planning on implementing STOCS in all counties. Region 1 is planning to continue training on and using the ITAC/ICALL channels as well as gateways and other interoperability solutions throughout Region 1 and the rest of the state.

Wilmington (Delaware)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

Delaware designated the City of Wilmington as its metropolitan area (area), which includes the counties of Kent, New Castle, and Sussex.

Governance: *Established Implementation*

Wilmington's Tactical Interoperable Communication Plan (TICP) was expanded to cover the state as a whole rather than one metropolitan area. This is consistent with the statewide communications infrastructure, as well as the governance structure that was established by the Governor 3 years ago. This governance group is known as the "Next Generation Committee" and is composed of state and local agencies from all first responder disciplines, as well as additional public support services. The group has a charter with active rules and agreements in place, and has stressed the importance of interoperability by creating funding strategies through 2008. Although Wilmington has developed a strategic plan that covers the entire state, it has not yet been fully adopted by all participating organizations, and it is not reviewed/updated annually. Having a published strategy will help ensure statewide compliance with the plan as public safety and state organizations continue to move toward achieving communications interoperability.

Recommendations:

- Suggest continuing to proactively recruit other members that need to be part of the group, including federal participants that are present in the area (e.g., U.S. Coast Guard)
- Encourage full adoption of the strategic plan with acceptance from all participants, and with reviews and updates on an annual basis
- Encourage a regional communications interoperability funding strategy, including long-term (e.g., 3 to 5 years) funding sources (in addition to grants)

Standard Operating Procedures (SOP): *Established Implementation*

Wilmington had pre-existing SOPs, primarily for its two major 800 megahertz (MHz) systems, which were incorporated in the TICP. As a result, the TICP was expanded to cover all three counties in the state. These policies have begun to be disseminated, and Wilmington is in the process of incorporating the TICP into the Delaware Emergency Operations Plan and as a requirement in all exercises. It was noted at the TICP validation exercise that plain language was not used at the incident. Delaware is also in the process of implementing National Incident Management System (NIMS)/Incident Command System (ICS) and the Communications Unit Leader duties. As detailed in its post-exercise Improvement Plan, gaps in these areas (e.g., plain language not used) will be addressed through additional training and exercises. For example, it was noted at the TICP validation exercise that there was a lack of unified command at the incident, and two separate, distinct incident command structures were in place. These instances illustrate opportunities for training to improve communications command and control. According to the After Action Report, Delaware's "public service agencies have a solid foundation in their approach to emergencies and they know their plan and procedures well." The state's team approach, including the city and county agencies, is commendable, and should be considered a best practice.

Recommendation:

- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Wilmington achieves communications interoperability through a shared system and fixed gateways. However, to more fluently use the mobile gateway system, additional training is needed. The majority of agencies are using the state's 800 MHz statewide shared system, which provides interoperability on a daily basis. The use of these systems was successfully demonstrated during the TICP validation exercise, allowing local and regional first responders to communicate with each other effectively. The exercise evaluators indicate that because of technical failures that impeded the proper implementation of the mobile command center equipment, additional training was needed to operate the state's mobile gateways. The gateways would likely be necessary to support federal agencies or responders from other states during a large scale incident.

Recommendations:

- Continue to conduct training on available technology (e.g., mobile gateway system) to improve familiarity with the capability and work toward seamless integration
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Wilmington area uses two large interconnected 800 MHz radio systems. The State of Delaware operates on an 800 MHz SmartZone™, and the City of Wilmington operates an 800 MHz SMARTNET™ system. The state has six radio caches (five in the 800 MHz band, and one in the ultra high frequency band), and has three types of gateway devices available for use. Statewide communications interoperability is also supported by the use of the five National Public Safety Planning Advisory Committee frequencies.

Ada County (Idaho)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

Idaho designated Ada County as its metropolitan area (area), which includes unincorporated portions of Ada County; the cities of Boise, Eagle, Garden, Kuna, Meridian, and Star; and the Boise Air Terminal.

Governance: *Advanced Implementation*

Communications interoperability is a clear priority for Ada County as demonstrated in the breadth of membership in the Ada County (Idaho) Emergency Communications Planning Committee (ECPC) (e.g., Idaho State Communications). Ada County is currently moving to a new system, and agreements are regularly updated among all agencies to facilitate the transition. Ada County has a strategic plan in place for interoperability that includes fire, public works, and hazardous materials agencies. Organizations within Ada County consider multi-agency interoperability (e.g., interoperability with the area's countywide system) when procuring communications equipment and have dedicated local funding (e.g., 9-1-1 tax) for new technology, upgrades, and maintenance, which reduces the area's reliance on federal grants for interoperability funding. The Ada County Sheriff is the approving authority in the area and, along with the governor, has shown political and fiscal support for communications interoperability across the area. With such success in the area of communications governance, Ada County should consider expanding its communications interoperability efforts with surrounding jurisdictions outside of the area.

Recommendations:

- Proactively recruit new participants, including regional, state, and federal agencies (e.g., Federal Bureau of Investigation, Bureau of Land Management), and define roles and responsibilities for all governance group members
- Review the strategic plan annually
- Align regional and state strategic planning efforts to ensure that regional interoperability needs are met

Standard Operating Procedures (SOP): *Established Implementation*

Ada County has long-established SOPs for interoperability within the county and has disseminated them to participating agencies. The area used existing policies and procedures in creating the Tactical Interoperable Communications Plan (TICP). Many of the regional SOPs were not followed during the TICP validation exercise, which demonstrates the need for further dissemination of and training on these policies and procedures beyond Ada County. National Incident Management System (NIMS)/Incident Command System (ICS) was implemented in Ada County more than 1 year ago, and the exercise evaluators noted that the performance of the acting Communications Unit Leader was "noteworthy" during the exercise. Because of the limited scope of the exercise, assessing the use of regional SOPs and command and control in a multijurisdictional environment (beyond Ada County agencies) was difficult. According to the After Action Report, the participants did not demonstrate proficiency with regional SOPs (e.g., when gateways were used, the TICP gateway request and deactivation procedures were not followed).

Recommendations:

- Ensure all participating agencies review and understand SOPs (e.g., gateway SOPs)
- Ensure that SOPs are consistent with regional and statewide interoperability communications plans
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Ada County reports daily use of shared channels, gateways, and the county's shared system. All available interoperability methods (i.e., shared channels, gateways, shared system) were successfully demonstrated during the TICP validation exercise. The limited scope of the exercise did not necessitate much cross-jurisdictional communications, but the Boise Bomb Squad, a regional first responder resource, was able to effectively communicate when the scenario required it. The successful TICP validation exercise can serve as a model for future cross-jurisdictional exercises. Dispatchers appeared somewhat unfamiliar with identifying and manipulating existing patches, but the patch was used successfully to connect multiple agencies. Officials in Ada County suggest that area agencies' response to recent day-to-day events with confident and successful use of available interoperability solutions has further demonstrated the Ada County public safety community's frequent use of and familiarity with communications interoperability resources.

Recommendations:

- Regularly test and exercise the deployment of regional communications interoperability resources to improve user proficiency (e.g., gateways)
- Consider adding interagency/multijurisdictional communications interoperability (including federal agencies) as a component for all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

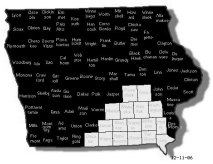
Technology Overview

Ada County communications are currently fragmented between the very high frequency (VHF) band and the ultra high frequency (UHF) band. Law enforcement agencies primarily operate on the UHF band while fire agencies and emergency medical services use the VHF band. This situation will be rectified when Ada County agencies transition to the new 700 megahertz (MHz) digital Project 25 (P25)-compliant trunked system. The transition is scheduled to be complete by the end of the first quarter of calendar year 2007.

While the Idaho Statewide Interoperability Executive Council released a plan in July 2005 that focuses on the 700 MHz statewide P25-compliant backbone, cost issues will probably force the state to an integrated P25 solution using 700 MHz primarily in populated areas and a combination of UHF and VHF in rural areas. Because 65 percent of the land in Idaho is federally owned, the VHF band will probably be used for coordination with federal agencies as well.

Ottumwa (Iowa)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Early Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

Iowa designated the City of Ottumwa as its metropolitan area (area), which includes the Ottumwa Metropolitan Area consists of Poweshiek, Iowa, Marion, Mahaska, Keokuk, Washington, Lucas, Monroe, Wapello, Jefferson, Henry, Decatur, Wayne, Appanoose, Davis, Van Buren, and Lee counties.

Governance: *Early Implementation*

Although officials noted that the Emergency 911 (E911) Board deals with equipment interoperability and that the Total Quality Improvement (TQI) group addresses general public safety issues, the relationship among the two groups and their decision-making responsibilities and authorities for ensuring interoperable communications in the area is not clearly documented. Ottumwa has some agreements in place (e.g., South East Iowa Response Group formal mutual aid agreements) and a mix of formal and informal partnerships among the agencies in the area. Formalizing these partnerships through documented agreements will ensure regionwide participation in achieving interoperable communications. Although strategic planning efforts exist broadly for public safety issues, the area does not have a specific strategy focused on improving interoperable communications. The area procures communications equipment based on agency-specific needs and does not have a long-term or regionwide funding plan addressing interoperability. Additionally, officials in the area indicated that leadership had only recently become aware of the need for and challenges of public safety interoperable communications.

Recommendations:

- Clarify how the two decision-making groups (i.e., E911 Board and TQI committee) are related through a formalized charter and define roles and responsibilities of each of the groups
- Develop regional interoperability agreements (e.g., memoranda of understanding) beyond the existing mutual aid agreements and involve all participant agencies
- Consider including interoperable communications as part of the overall strategic planning process
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the Tactical Interoperable Communication Plan [TICP]) with participant approval, adoption, and acceptance that takes into account a long-term communications funding strategy (beyond grants)
- Begin to prioritize and identify funding sources to meet regional interoperability needs and identify long-term (e.g., 3 to 5 years) sustainable funding for communications interoperability beyond grants
- Identify a champion(s) that would more fully support a regional strategic plan for interoperability
- Raise communications interoperability priority across the area and broadly involve senior government leadership

Standard Operating Procedures (SOP): *Established Implementation*

Ottumwa has had a multihazard response plan (containing components addressing general communications provisions) in place for more than 20 years; however, the TICP represents the first regional SOPs for interoperable communications. Most of the first responder agencies in the area participated in the TICP development, and the area has plans to disseminate these SOPs to agencies in the area in the future. Until

this distribution occurs, there is no way to ensure that agencies are fully informed of the procedures to achieve interoperable communications. Ottumwa has implemented and has been practicing SOPs compliant with the National Incident Management System (NIMS)/Incident Command System (ICS) for more than 1 year and was able to demonstrate familiarity with command and control communications during its TICP validation exercise. However, during the TICP validation exercise, there were indicators that more practice of command and control SOPs is needed. For example, during the exercise, the Communications Unit Leader was pre-designated but did not demonstrate a full understanding of the responsibilities, ICS forms were not completed, and participants did not use plain language.

Recommendations:

- Document and distribute regional interoperability SOPs (beyond the TICP) and put them into practice through regular training (e.g., in-service refreshers and basic training courses), exercises, and usage
- Consider developing policy on use and limitations of commercial services (e.g., cellular telephones)
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

---

Usage: *Intermediate Implementation* 

Within the limited scope of the TICP validation exercise (e.g., exercise participants represented mainly Ottumwa County and not other jurisdictions in the area), the participants demonstrated an understanding of the available interoperable communications equipment (radio caches and shared channels). However, because only two local agencies beyond Ottumwa County were represented in the exercise (e.g., Wapello County Sheriff's Department, Southeast Iowa Response Group). The participants encountered usage issues, such as interference on the statewide mutual aid channel, when attempting to leverage interoperability solutions.

Recommendations:

- Follow the recommendations provided to the area in the Exercise Evaluation Guide (e.g., address interference issues, available frequencies, radio cache protocols)
- Regularly test and exercise deployment of regional interoperability communications resources (e.g., cached radios, shared channels) to improve proficiency of use
- Consider adding communications interoperability as a component of all future exercises

---

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Ottumwa Police Department uses an ultra high frequency radio system, while most other public safety entities, such as the Ottumwa Fire Department and emergency medical services, use very high frequency (VHF) radio systems. Interoperability is limited to four VHF cache radios and three shared channels that are only shared within disciplines rather than across disciplines. There are no interoperability gateways or shared systems available.

For the future, the State of Iowa is planning to purchase a Raytheon ACU-1000M interoperability gateway with 2 dedicated portable radios for each of the 17 counties (including Wapello County) in Iowa Homeland Security Region 5. Additionally, the state is planning to establish a radio cache of 10 portable radios for each Region 5 county. The radio cache frequency band would be decided by each county.

Topeka (Kansas)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Advanced Implementation*

Kansas designated the City of Topeka as its metropolitan area (area), which includes the City of Topeka and Shawnee County, as well as entities located within the county.

Governance: *Established Implementation*

The Communications Management Board serves as the regional decision-making group for the area. The board has the authority and mission to manage regional interoperability, and members include city and county law enforcement and fire services. It is unclear how well emergency medical services (EMS) is represented within the decision-making group. The area has formal agreements (e.g., shared user agreements and other interlocal governmental agreements) with local public safety organizations. The area has a strategic plan for interoperable communications in place; however, it is unclear how regularly the plan is reviewed. The area has provided for long-term regional fiscal support for interoperable communications systems through a tax in place on landline and cellular telephones. The area's leadership should be commended for involving all participating agencies in prioritizing communications interoperability, and identifying long-term sustainable funding.

Recommendations:

- Ensure decision-making group membership represents all first responders and public support disciplines (e.g., EMS, hospitals, public health)
- Establish processes to develop and review agreements (e.g., usage agreements, memoranda of understanding) at least every 3 to 5 years and after significant events or upgrades
- Update regional strategic plan annually and after system upgrades and significant events
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met

Standard Operating Procedures (SOP): *Established Implementation*

Previously existing agreements (e.g., Mutual Agreements for Regional Dispatch Center, and Originating Agency Identifier Agreements) were incorporated into the Topeka Tactical Interoperable Communications Plan (TICP). The area has begun to disseminate these SOPs through the TICP Implementation Workshop and by including them with the gateways. National Incident Management System (NIMS)/Incident Command System (ICS) was implemented more than 1 year ago, and a wide variety of public support organizations (e.g., hospitals, churches) are being trained on these processes. During the TICP validation exercise, participants experienced some communications command and control problems attributable to a failure of NIMS/ICS (e.g., law enforcement communications bypassed the Operations section chief, multiple Operations command nets [one per branch] were established, common terminology and standard naming conventions were not always used).

Recommendations:

- Continue to distribute regional interoperability SOPs (beyond the TICP), to all participating agencies and dispatch centers

- Consider developing policy on avoiding use of commercial services (e.g., cellular telephones) for mission-critical communications
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Advanced Implementation* 

The Topeka area frequently uses its available means of interoperable communications (e.g., gateways and shared systems). During the exercise, the participants effectively established interoperable communications among agencies, and participant's demonstrated proficiency and familiarity with the equipment (e.g., cache radios, gateways, shared channels, and shared systems). There was a good level of participation from local, state, and federal agencies (e.g., railroads, Kansas Highway Patrol, Federal Bureau of Investigation). The area should be commended on its effective use of amateur radio during day-to-day communications unit staffing, via its amateur communications capability program, to reduce the dispatch workload in times of heavy traffic. Topeka Amateur Radio Emergency Services also demonstrated knowledge and effective use of the available interoperability solutions (e.g., gateway).

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The State of Kansas identified the City of Topeka as its focus for the TICP. All major public safety and governmental agencies in the City of Topeka operate on an 800 megahertz, Motorola SMARTNET™ system. The system consists of approximately 70 agencies and 250 talk groups. All radios have been configured with interoperability channels listed as Event 1, Event 2, and Event 3. Law enforcement and fire radios use common channels. All radios have been programmed with National Public Safety Planning Advisory Committee channels.

Shawnee County uses a Motorola 2-site, 15-channel, simulcast, trunked system. The system was developed in partnership with the Kansas Department of Transportation. The state is a licensee of the system while the county provides the infrastructure and assists in system maintenance. In addition, the county has use of two conventional channels: a mutual aid call and mutual aid Tactical (TAC) and has recently updated the controllers in its east and west radio sites.

The State of Kansas point of contact has stated intentions to develop TICPs for other major metropolitan centers using Topeka plan as a model. The current status of these intentions is unknown. Plans for such efforts are developed by the Kansas Department of Transportation, which also maintains the radio system for the Kansas Highway Patrol. The state system is planned to be expanded to allow other counties to buy or lease radios and rent space on the system. The state is also expecting to transition to a digital system soon.

Portland (Maine)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Advanced Implementation*

Maine designated the City of Portland as its metropolitan area (area), which includes the following counties: Androscoggin, Aroostook, Cumberland, Franklin, Hancock, Kennebec, Knox, Lincoln, Oxford, Penobscot, Piscataquis, Sagadahoc, Somerset, Waldo, Washington, and York.

Governance: *Established Implementation*

The Portland area has a communications-specific committee made up of agency directors and department commissioners from public safety, emergency medical services, and the Federal Emergency Management Agency (among others). The area indicated that multiple groups were addressing interoperability in the area (State of Maine Homeland Security Advisory Council [HSAC], Tactical Interoperable Communications Plan (TICP) Working Group, Radio Network Board, and the communications-specific Concept of Operations [CONOPS] group), and it appears that the decision-making authority and the implementation responsibilities are not clearly defined among them. There is strong state support for the planning that has occurred to date, but the area appears to lack sufficient local representation (from Portland) in implementing the TICP. Formal agreements are in practice among all organizations in the area, which are regularly updated and distributed. Beyond the operational TICP, there was no reference to a strategic plan for interoperable communications other than the CONOPS plan that outlined operational means of interoperability (e.g., simplex frequencies licensed to the State of Maine for certain circumstances). Despite the lack of a documented long-term strategy or a specific plan for sustainable funding of interoperable communications, the organizations develop their budgets and procure communications equipment with consideration for regional interoperable communications goals through federal funds and state and local resources. State and local leadership has made interoperability a fiscal priority by obtaining and allocating grant monies and state resources to communications.

Recommendations:

- Clarify the decision-making authority and the implementation responsibilities of the governing bodies (i.e., State of Maine HSAC, communications specific CONOPS group, Radio Network Board, TICP Working Group) through a formalized charter and ensure local first responder participation
- Share formal agreements (e.g., memoranda of understanding) with other areas as a best practice
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the TICP and CONOPS) that includes longer term regional goals, regulatory changes, and a long-term (e.g., 3 to 5 years) communications funding strategy beyond grants
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Consider developing funding plans jointly as a area to maximize shared resources
- Consider the direct involvement of a high-level official(s), with political and fiscal authority, to specifically focus on interoperability
- Communicate the success of the TICP to gain further leadership support

Standard Operating Procedures (SOP): *Established Implementation*

The Portland metropolitan area has demonstrated success in incorporating existing mutual aid agreements (State of Maine CONOPS) involving interoperability into the Portland TICP. The area held a TICP Implementation Workshop to inform and train participants in the plan, but no further regional dissemination of these SOPs to additional agencies is evident. Portland is beginning to implement National Incident Management System (NIMS)/Incident Command System (ICS) and encountered only minor command and control problems during the exercise (e.g., Communications Unit Leader announcement was not included as part of the TICP, ICS Form 205 was not updated).

Recommendations:

- Continue distributing regional interoperability SOPs (beyond the TICP), to all participating agencies and dispatch centers
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Advanced Implementation*

The Portland area regularly uses shared channels and shared systems in day-to-day operations. During the exercise, the participants effectively established interoperable communications and demonstrated proficiency and familiarity with the available interoperability equipment (e.g., successfully provided tactical interoperable communications through the use of shared channels and systems). For example, South Portland used Maine CONOPS channels for incident communications while Portland agencies used their 800 megahertz (MHz) system. There was a good level of participation from local, state, and federal agencies (e.g., Cumberland County Emergency Management Agency, Maine Emergency Management Agency, U.S. Coast Guard), and the area should be commended for establishing a communications governance agreement (designated to share communication channels and capabilities) among the local agencies and the U.S. Coast Guard.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The State of Maine uses the Maine State Communication Network Program, a very high frequency (VHF) high band system intended to support all state-level public safety agencies. The State of Maine Department of Transportation uses a VHF low band system. Additionally, local and county radio systems are independently managed and operated. Specific shared interoperable communications channels are described by the Maine CONOPS. The CONOPS is fully functional within the cities of Portland and South Portland. In addition, the City of Portland supports 800 MHz ICALL and ITAC1 as standard National Public Safety Planning Advisory Committee channels, but coverage is limited to the I-95 corridor. Gateways consisting of audio bridges, console patches, and crossband repeaters are used by various agencies. The City of Portland supports local agencies using an 800 MHz Motorola SMARTNET™ I System and has a halo of VHF stations that link into its 800 MHz system, which allows city practitioners to communicate with the surrounding communities on the VHF band. In the near term, the area's emphasis is on extending the CONOPS concept throughout the state. Mid-term and long-term planning includes improving interoperability among the major cities, as well as the local and county independently managed systems.

Jackson (Mississippi)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

Mississippi designated the City of Jackson as its metropolitan area (area), which includes the counties of Hinds, Madison, and Rankin.

Governance: *Intermediate Implementation*

The Mississippi Wireless Communications Commission established the Mississippi Capitol Region (MCR) Committee (MCRC) to develop the Tactical Interoperable Communications Plan (TICP) and is beginning to establish interoperability as a priority in the area. Although the area has taken a positive step in establishing the governance group, it would benefit from a clearer statement of its mission and responsibilities (possibly through updating the charter). The decision-making group does not meet regularly; therefore, it appears that the group cannot adequately address interoperability issues among Rankin and Hinds counties (identified in the After Action Report). It appears that statewide mutual aid agreements were the sole published and active agreements in place to ensure interoperability before the TICP and that there are no agreements specifically for the purpose of interoperability. The area is working on developing a strategic plan, and once completed, it will need to be distributed to regional public safety agencies. Regional leadership and local jurisdictions within MCR appear to be working to develop a regional plan upon which to base budgets and procurement decisions.

Recommendations:

- Establish regularly scheduled MCRC meetings and expand MCRC membership to appropriate jurisdictional levels (e.g., local, state, and federal representation)
- Document and put into practice agreements (e.g., memoranda of understanding) among all participating agencies to support partnerships on regional interoperability
- Encourage planning and development of a strategic plan beyond the operational plan outlined in the TICP with participant approval, adoption, and acceptance; align local and state strategic planning efforts to ensure that regional interoperability is needs are met
- Initiate the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) communications interoperability planning and sustainable funding
- Continue to involve government leadership in communications interoperability issues and encourage long-term regional funding plans

Standard Operating Procedures (SOP): *Intermediate Implementation*

The MCR used previously existing informal guidelines among jurisdictions in the area to develop new interoperable communications SOPs for the TICP. As a result, the TICP provided the area's first SOPs focused on interoperability. These SOPs were disseminated to public safety agencies in the area at the TICP Workshop. MCR reports compliance with National Incident Management System (NIMS)/Incident Command System (ICS) and began training more than 1 year ago. During the exercise, the area as a whole did not fully demonstrate interoperability proficiency with NIMS/ICS, specifically the Jackson Incident

Commander did not perform Communications Unit Leader duties, which resulted in slower development of an ICS.

Recommendations:

- Document regional communications interoperability SOPs (beyond the TICP) and put them into practice through training and exercises
- Ensure that regional SOPs are aligned with statewide planning efforts
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

Jackson officials report that the area's first responders have been largely successful in implementing interoperability solutions during recent events requiring multijurisdictional response. During the TICP exercise, some agencies within Madison and Rankin counties were able to communicate; however, the participants did not demonstrate proficiency in using their available means of interoperable communications (e.g., radio caches, gateways, shared channels, shared systems). For example, according to the After Action Report, "the City of Jackson was unable to communicate effectively with other agencies because its radio architecture differs from those of surrounding systems.

Recommendations:

- Regularly test and exercise the deployment of regional interoperability resources to improve proficiency of use (e.g., practice use of radio caches and mobile gateways)
- Consider adding communications interoperability as a component of all future exercises

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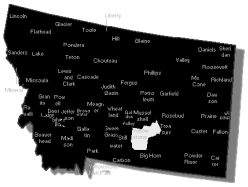
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Mississippi has a very high frequency (VHF) low band radio system that can be used anywhere in the state, including with many VHF, ultra high frequency (UHF), and 800 megahertz (MHz), interoperable/mutual aid channels, including VHF VTAC and UHF UTAC in Jackson. Four shared systems can be used in the greater Jackson area, including three 800 MHz systems and one VHF high band radio system. There are more than 11 gateways or methods by which talk groups and/or channels can be patched.

High on the interoperability communications priority list for the Jackson metropolitan area is the coordination of gateway and console patches in use. It is the position of the area that permanent patching at fixed site gateways and base stations is critical for instant interoperable communications before mobile resources can be activated and operational.

Yellowstone County (Montana)



Tactical Interoperable Communications Scorecard

Summary

Governance: *Early Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

Montana designated the entire State of Montana as its metropolitan area (area); however, the information below pertains only to the Yellowstone County area because the Communications Sub-Committee of the Local Emergency Planning Committee (LEPC) in Yellowstone County was the lead that participated in the Tactical Interoperable Communications Plan (TICP) process. The Yellowstone County area, which is located in south central Montana, includes the cities of Billings, Broadview, and Laurel.

Governance: *Early Implementation*

Although the State of Montana has been active in interoperability efforts, it is very unclear how established the defined area (Yellowstone County) is in this larger effort. Specific to the TICP development and validation exercise, the governance structure did not appear well defined. The development of a TICP that included only law enforcement agencies (as opposed to first responders as a whole) was particularly problematic (even if the TICP was initially based on existing law enforcement policies). This was reinforced by some findings of the TICP validation exercise (e.g., the Billings Fire Department could not communicate with the Billings Police Department with shared channels). While the area indicates that the state is developing regional strategic plans through the eight state consortiums, Yellowstone's level of involvement in this state effort, or any strategic planning for the specified area is unclear. Individual agencies currently develop and maintain their own budgets and procure equipment based on agency-specific needs, although agencies are looking toward considering interoperability across the metropolitan area in the future. Yellowstone County has mixed communications interoperability support from its first responder and political leadership.

Recommendations:

- Involve all first responders, as well as public support, state, federal, and tribal agencies in the decision-making group and define roles and responsibilities
- Document and formalize agreements (e.g., memoranda of understanding) among all participating agencies to support partnerships on regional interoperability
- Consider broadening agreements to include state, federal, and tribal agencies
- Develop and implement a strategic plan (beyond the operational focus of the TICP), with participant approval, adoption, and acceptance
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Incorporate a regional interoperability funding strategy into a strategic plan, with consideration of funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts
- Continue to broaden and champion a governance structure that would more fully support regional interoperability
- Consider the direct involvement of a high-level official, with political and fiscal authority, to specifically focus on interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation* 

The Yellowstone TICP appears to have been developed primarily by the law enforcement community and only law enforcement is listed in the plan's included agency list. The area indicated that most of the existing law enforcement policies and procedures were incorporated in the TICP. The area does not appear to have actively disseminated these SOPs. A number of issues were encountered because the response in the TICP validation exercise did not comply with the policies in the plan. The National Incident Management System (NIMS)/Incident Command System (ICS) has been implemented for more than a year and is formalized in the area's policies. As noted in the After Action Report (AAR), "the command and control operations…are among the most effective and disciplined the evaluators have seen." Despite this well-established command, the exercise did not successful incorporate the communications unit and communication unit leader (COML) position in the validation exercise.

Recommendations:

- Expand multidiscipline participation (beyond law enforcement) in the development of regional interoperability SOPs
- Evolve TICP based on expanded participation and disseminate as appropriate
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Intermediate Implementation* 

Yellowstone officials indicated that they used their shared system and shared channels on a daily basis. Likewise, a crossband repeater is regularly used to link 800 megahertz (MHz) and very high frequency (VHF) agencies in the county. Law enforcement agencies have a well-established color-coded shared channel plan, and the use of a shared channel (although not included in the TICP) was demonstrated during the exercise. Law enforcement agencies were also effectively connected using a console patch. As noted by the exercise evaluators, "The exercise validated the TICP within law enforcement; however it identified areas in need of improvement for interoperability within other agencies." Specifically, the AAR indicated that, "Within the City of Billings, the Police Department cannot talk to the Fire department although they are on a shared system."

Recommendations:

- Regularly test and exercise deployment of regional interoperability resources to improve proficiency (e.g., use of shared system across disciplines)
- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Funding from Department of Homeland Security grants to the Montana metropolitan area is coordinated through Montana Disaster and Emergency Services (MDES). In Yellowstone County, there are two radio caches. Also, 800 MHz and VHF mutual aid frequencies are used as interoperable channels. There are two fixed gateways—a permanent crossband unit that directly patches 800 MHz and VHF frequencies for interoperable communications, and a temporary 800 MHz-to-VHF patch. In addition, there is an 800 MHz analog trunked shared system (City of Billings system) that supports the entire area.

Concord (New Hampshire)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

New Hampshire designated the City of Concord as its metropolitan area (area), which includes Belknap and Merrimack counties as its tactical interoperable communications planning area.

Governance: *Established Implementation*

New Hampshire has a Joint Committee for first responders that has oversight for interoperability in the state. For the purposes of the Tactical Interoperable Communications Plan (TICP) development, Concord established a working group of state officials and multidiscipline agencies. Federal and public support agencies (e.g., the National Guard, acute care hospitals) were involved in the TICP development. The area indicated that an interoperability memorandum of understanding (MOU) was in place for all local agencies in the state. The area indicated, however, that there was no single strategic planning document for interoperability. New Hampshire has developed a long-term infrastructure strategy (as included in Section 7 of the TICP), which is implemented as grant funding becomes available. It is not clear whether a long-term funding strategy to support the lifecycle costs of these systems is in place. There appears to be strong support for resolving interoperability issues at all levels of government. As noted by exercise evaluators, "There was a high level of commitment and involvement by state government officials. It was clear that the area benefited from the leadership and facilitation of a committed advocate."

Recommendations:

- Involve federal and public support organizations in the decision-making group and document roles and responsibilities as part of the group
- Develop and review agreements (e.g., MOUs) at least every 3 to 5 years and after significant events or upgrades
- Develop, document, and implement a strategic plan (build on the TICP New Hampshire Statewide Interoperability Expansion Project future plans), including technical, policy, operational, and funding aspects
- Develop, document, and incorporate regional interoperability funding strategy into strategic plan, such as considering funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts

Standard Operating Procedures (SOP): *Established Implementation*

Concord has used the TICP process to document and expand previously informal interoperability procedures. SOPs have been disseminated, but additional steps need to be taken to promulgate these policies among included agencies. The area implemented National Incident Management System (NIMS) more than a year ago as part of the statewide certification process. During the TICP exercise, evaluators commended the area for exceptional communication among Unified Commanders. The communications unit and Communications Unit Leader (COML) have begun being implemented into the area's response structure; however, some gaps with the use of the latter position were noted in the exercise.

Recommendations:

- Ensure all regional interoperability SOPs are in the TICP and put into practice to increase the proficiency in the use of these policies
- Disseminate the TICP to all participating agencies.
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Concord regularly provides interoperable communication through the area's very high frequency (VHF) systems. Additionally, the state has implemented a series of gateways, as well as two state radio caches, through the Statewide Infrastructure Interoperability Project. During the TICP validation exercise, the radio cache deployment was noted as well done by evaluators. Some coverage problems were encountered in the use of shared channels during the exercise. Communications to the dispatch center were not always clear or understood and often had to be repeated, which was attributed to coverage issues. Additionally, it was unclear whether announcements were made before gateway activation. The National Guard was also actively involved in the TICP planning and exercise.

Recommendations:

- Regularly test and exercise deployment of regional interoperability resources to improve proficiency, and include federal agencies
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The City of Concord maintains several radio systems. Concord Fire, Concord Police, and Bow Police run a predominantly simplex mode VHF high band analog radio system. They also maintain an ultra high frequency (UHF) repeater for fire alarm and administrative functions, as well as UHF links for transmitter sites. Concord Police now operate on a Project 25 (P25) compliant, VHF high band, digital radio system that is used in simplex and duplex modes. Merrimack County uses a VHF dual mode digital/analog radio system and provides dispatch services for 10 communities around the Concord area. The State's Radio Interoperability Frequency Subcommittee has established a standard VHF radio programming template that is used in all VHF Fire and Emergency Medical Services radios, providing interoperability across the state. The area is working toward acquiring a single, shared, fully P25-compliant trunked radio system. The New Hampshire Statewide Interoperability Expansion Project has been under development for quite some time and is divided into three areas. The Project has acquired and installed ACU-1000 audio matrix switches at designated communications sites to provide on-site connectivity of multiple frequency band base stations. The Statewide Infrastructure Interoperability Expansion Project will require additional VHF low band, UHF, and 700/800 megahertz base stations or repeaters to achieve interoperability for console-to-base, base-to-base, base-to-mobile, and mobile-to-mobile communications. A shared mobile command post platform will provide a movable source of infrastructure resources such as dispatch consoles, multiple frequency band base or control station repeaters, computer telecommunications facilities, telephone facilities, and wireless access points.

Albuquerque (New Mexico)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Early Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

New Mexico designated the City of Albuquerque as its metropolitan area (area), which includes Valencia, Bernalillo, and Sandoval counties, as well as incorporated cities and Native American tribes and pueblos located within those counties. This area is also known as the Middle Rio Grande Planning Area.

Governance: *Early Implementation*

The Middle Rio Grande Valley/Greater Albuquerque Metro Planning Area (Middle Rio Grande Planning Area) established the Communications Committee in March 2006 to develop the Tactical Interoperable Communications Plan (TICP). The Committee includes public safety support agencies (Public Health, Utilities, and the Mayor's Office) and state and federal agencies. With the creation of the TICP, the metropolitan area has published and active agreements among the regional agencies, but they are not yet fully in practice across the area. The Mid Rio Grande Planning Area does not have an interoperability strategic plan in place and hopes to work with the state to further develop the statewide plan. The individual organizations in the Mid Rio Grande Planning Area maintain their own budgets independent of regional strategic planning. The area obtains most of its communications funding through grants and does not appear to have a long-term funding plan. While public safety communications is a priority at the state level, the leadership at the local level has not clearly demonstrated fiscal or political support for interoperable communications.

Recommendations:

- Ensure that all applicable local, state, federal, and tribal agencies (taking into account international interoperability efforts) are involved in the decision-making group and define roles and responsibilities as part of the group
- Continue to support the decision-making group through regularly scheduled meetings (consider more frequent meetings) and actively working issues to address regional (tactical and strategic) interoperability
- Document and put into practice agreements (e.g., memoranda of understanding, mutual aid agreements) among all participating agencies to support partnerships on regional interoperability
- Develop and implement a strategic plan (beyond the operational focus of the TICP), with participant approval, adoption, and acceptance
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Incorporate regional interoperability funding strategy into a strategic plan, including considering funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts
- Identify a champion (or group) to motivate and promote continued interoperability progress in the area
- Consider the direct involvement of a high-level official, with political and fiscal authority, to effectively and specifically focus on interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation*

While it incorporates previously existing mutual aid agreements within the state, the TICP represents the area's first multijurisdictional, multidiscipline interoperable communications SOPs. Since the TICP process

began, Albuquerque has worked well with many local, state, federal, and tribal agencies (e.g., Utilities, Mayor's Office, State Police, Customs and Border Protection, Kirkland Air Force Base) to further develop regional interoperability SOPs. It is unclear whether there is full participation with all of the jurisdictions in the area (e.g., Valencia County did not attend the planning meeting or exercise). It is also unclear whether the area has actively disseminated the SOPs. In December 2005, the area created an All-Hazards Plan that mandated National Incident Management System (NIMS)/Incident Command System (ICS). Although NIMS/ICS was recently implemented, the exercise participants demonstrated proficiency with command and control, including the Communications Unit Leader responsibilities.

Recommendations:

- Encourage full participation of all first responders (e.g., Valencia County) incorporated into regional interoperability SOPs
- Continue to develop SOPs within the TICP framework and disseminate throughout area
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The area operates on a shared system for daily interoperable solutions. During the TICP validation exercise, the participants demonstrated familiarity and proficiency with the area's interoperable communications equipment. Albuquerque ensured the participation of state and federal agencies (e.g., State Police, Federal Bureau of Investigation) in their TICP validation exercise, which allowed for a valuable opportunity for area first responders to familiarize themselves with the challenges of interoperating with public safety officials who are not as familiar with the area shared system. The area effectively used the radio cache, gateways, shared channels, and the shared system. The area's day-to-day usage of the shared system and exercise have demonstrated proficient use of interoperable solutions across jurisdictions and agencies; however, it is unclear whether all local and tribal first responder agencies are able to demonstrate the same level of proficiency. Albuquerque relies on the use of shared channels and rarely uses gateways for interoperability purposes. The National Guard Civil Support Team participation during the exercise was commendable.

Recommendation:

- Consider adding communications interoperability as a component of all future exercises (e.g., regional first responders should incorporate use of gateways)

Below is a summary of the area's existing technology used to provide communications interoperability:

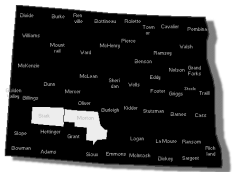
Technology Overview

The Middle Rio Grande Planning Area working group has six radio caches, shared channels for interdiscipline law, fire, and emergency medical services. The group has six mobile gateways and one fixed gateway. Five shared systems in the area include an 800 megahertz system, a conventional ultra high frequency (UHF) system, two conventional very high frequency (VHF) systems, and a conventional UHF/VHF system.

The state is working on a statewide architecture and using the Interoperable Communications Technical Assistance Program Communications Asset Survey and Mapping tool to inventory equipment.

Mandan (North Dakota)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Early Implementation*

North Dakota designated the City of Mandan as its metropolitan area (area), which includes the City of Mandan and the counties of Morton and Stark.

Governance: *Intermediate Implementation*

The Morton/Stark County Working Group (MSCWG) is beginning to establish interoperability as a priority for the area. The MSCWG was created in 2005 for the development of the Tactical Interoperable Communications Plan (TICP). While the TICP takes a positive step in establishing a governance committee, the group does not currently have any formalized agreement establishing mission, roles, or authorities (e.g., charter). The area has some formal agreements across public safety agencies in the area but relies primarily on informal partnerships among the jurisdictions in the area. The area lacks a formal leadership position or body that is helping prioritize communications interoperability; likewise, the area does not currently have a strategic plan that incorporates interoperable communications efforts beyond the operational focus of the TICP. There appears to be strong support among the local first responders for emphasizing interoperability as a funding priority (e.g., cooperation to fund equipment within jurisdictions); however, the individual jurisdictions currently procure communications equipment without a regional plan guiding their decisions. Funding is currently based on federal grants, and there is no long-term regional funding plan for recurring expenses without which there is no guarantee of continued ability to operate and maintain existing interoperable infrastructure..

Recommendations:

- Identify state, federal, and tribal representatives to participate in the existing decision-making group, develop roles and responsibilities, and establish a charter
- Document, formalize, and put into practice the necessary interoperability agreements (e.g., memoranda of understanding) with state, federal, and tribal partners to ensure consistent communications plans (including more than existing local mutual aid agreements)
- Develop and implement a strategic plan to chart longer term communications interoperability goals (beyond the operational plan put forth in the TICP), and ensure its acceptance by all participating agencies; align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Initiate the development and implementation of a regional approach to long-term (e.g., 3 to 5 years) interoperability planning and sustainable funding
- Consider the direct involvement of a high-level official with political and fiscal authority to specifically focus on interoperability
- Consider establishing a direct line of communication among local and state level agencies to advocate the importance of interoperable communications

Standard Operating Procedures (SOP): *Intermediate Implementation*

Previous existing policies and procedures from each of the participating jurisdictions were incorporated into the TICP (e.g., county SOPs and mutual aid agreements). Since the creation of the TICP, the area has taken

steps to disseminate the communications interoperability SOPs to all agencies in the area, including the dispatch centers. The area also held a TICP Workshop to further distribute the information. The area began National Incident Management System (NIMS)/Incident Command System (ICS) training 1 year ago at the 100 and 200 course levels and is currently working to implement 300 and 400 level series courses. During the exercise, however, command and control issues arose, indicating that further practice and training is needed on following these SOPs. For example, a Communications Unit Leader was designated, but did not announce his duties over the radio.

Recommendations:
- Review and revise shared channel SOPs to enhance efficiency and use of channels
- Ensure that regional SOPs are aligned with statewide planning efforts
- Practice NIMS/ICS through training and exercises, and establish a regular training schedule, to improve interoperable communications
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Early Implementation* 

Regular use of interoperable communications equipment is limited in the area. Stark and Morton counties regularly use shared channels to communicate. During the exercise, however, the area relied mainly on commercially provided communications devices, which were not accounted for in its TICP. They also encountered a channel overload issue among the Incident Commander, emergency operations center, emergency medical services command, etc., and available steps were not used to remedy the situation (e.g., other available channels were not accessed). In an attempt to communicate among two sets of first responders on separate State Radio Channels, a dispatcher at first manually relayed transmissions, followed by the ad-hoc development of a patch; neither of these solutions conforms to the SOPs laid out in TICP.

Recommendations:
- Consider developing policy on use and limitations of commercial services (e.g., cellular telephones)
- Involve private, state, federal, and tribal agencies in training and exercises
- Consider adding communications interoperability as component for all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

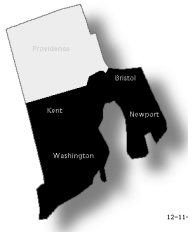
Technology Overview

Public safety agencies within the Mandan metropolitan area mainly use very high frequency conventional communications systems. The State of North Dakota has an analog conventional four-channel communications system that can be used by most agencies within the state for tactical interoperability.

The statewide channels that North Dakota uses are currently being upgraded to digital Project 25 compliant conventional channels. New base stations/repeaters are being purchased and additional frequencies are being licensed to support this upgrade.

Providence (Rhode Island)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Early Implementation*

Rhode Island has designated the City of Providence as its metropolitan area (area).

Governance: *Intermediate Implementation*

Providence has a Communications Working Group, which reports to the Domestic Preparedness Subcommittee of the Lieutenant Governor's Advisory Board on Emergency Management. Although the group has been formalized with a mission, authority, and responsibilities, it appears to be driven by the state and lacks sufficient local and federal involvement (e.g., law enforcement, fire services, and U.S. Coast Guard [USCG]). There are informal agreements and a mix of formal and informal partnerships among the public safety organizations in the area. The continued development of documented agreements would support the formalization of these partnerships to ensure clear roles and responsibilities relating to communications interoperability issues and decisions. The State of Rhode Island is developing plans for a statewide 800 MHz system, but Providence does not have a locally driven strategic plan for regional interoperable communications that supports both the local and the state long-term interoperability goals. Officials in the area reported that most interoperability funding came from federal grants, and budgets were developed annually without a regionwide plan for the procurement, distribution, or spending of grant dollars. Because there is no local tax base or other local funding vehicle for interoperable communications, it appears that there is no clear sustainable mechanism for fiscal sustainability. The Rhode Island state leadership has demonstrated political and fiscal support by obtaining federal grant funds, but the level of local participation in these communications interoperability efforts is unclear.

Recommendations:

- Identify local first responders and federal agencies (e.g., police, fire services, USCG), in addition to state agencies, to participate in the decision-making group, and develop formal roles and responsibilities of the participants
- Establish a charter to encourage formal membership in the decision-making group (including all first responder agencies)
- Develop and finalize regional communications interoperability agreements (e.g., memoranda of understanding), and involve all participants at the local level
- Develop, document, and implement a regional strategic plan (beyond the operational focus of the Tactical Interoperable Communications Plan (TICP) and the statewide 800 MHz system plan) with participant approval, adoption, and acceptance that takes into account a long-term communications funding strategy beyond grants
- Align local and statewide strategic planning efforts to ensure regionwide interoperability needs are met
- Identify long-term (e.g., 3 to 5 years) sustainable funding for communications interoperability, beyond grants, that can cover lifecycle costs
- Consider the direct involvement of local, executive-level official(s), with political and fiscal authority, to specifically focus on interoperability

Standard Operating Procedures (SOP): *Established Implementation* 

The Providence area incorporated existing policies and procedures from local law enforcement, fire, and emergency medical services (EMS) agencies, as well as hospitals into the TICP. This plan serves as the area's first comprehensive set of interoperable communications SOPs, and steps have been taken to disseminate them throughout the area (e.g., participating agencies attended a TICP Workshop to review the revised SOPs). Although the TICP Peer Review panel noted that "the area met the minimal requirements [for TICP development]," it is evident from the area agencies' successful demonstration of communications interoperability solution policies, practices, and procedures that Providence public safety personnel are well versed in the SOPs defined for the area. Local officials reported that most of the public safety agencies in the area participated in creating the TICP. Providence began implementing the National Incident Management System (NIMS)/Incident Command System (ICS) more than 1 year ago, and all public safety agencies in the area use these procedures. The TICP validation exercise, however, highlighted areas for improvement in command and control (e.g., the communications unit was under-staffed, responders used resources outside those included in the TICP). This indicates that the understanding and application of SOPs can be improved.

Recommendations:

- Revise the TICP to include updated policies and procedures for applicable assets (e.g., availability of additional shared channels)
- Consider developing policy on use and limitations of commercial services (e.g., cellular telephones)
- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Early Implementation* 

Although the area reports the use of shared channels and gateways, it is evident that the area does not use these available means of interoperable communications regularly. During the TICP validation exercise, participants did not exhibit proficiency in using these communications interoperability solutions. For example, the area's two identified shared channels are not designed to support the tactical needs of a critical incident, and participants were unsuccessful in implementing a gateway patch.

Recommendations:

- Implement the recommendations identified in the After Action Report regarding additional equipment (e.g., establish a radio cache)
- Regularly test and exercise deployment of regional interoperability resources (e.g., shared channels, gateways) to improve proficiency
- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Currently, Providence Police uses an ultra high frequency system, while the Providence Fire Department uses a very high frequency system. The Fire Department and EMS are on separate systems that do not connect in any way. The Providence Police and Fire Department each have a shared channel that can be programmed into other police and fire agencies' radios. The State of Rhode Island is implementing a statewide 800 MHz radio system. All public safety agencies in the state are planned to be on this system.

Charleston (South Carolina)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

South Carolina designated Charleston as its metropolitan area (area), which includes communities and counties in Berkeley, Charleston, and Dorchester (collectively known as the Lowcountry region).

Governance: *Intermediate Implementation*

The Charleston area was brought together to address interoperability in the aftermath of Hurricane Hugo 16 years ago. Today, communications in the Charleston area is overseen by a formal communications group (Lowcountry Interoperable Communications Council [LICC]). It was noted in the peer review that the term "RSAG" that was used in the Tactical Interoperable Communications Plan (TICP) needed to be defined, as it could otherwise lead to confusion regarding the appropriate governance structure for interoperable communications efforts. Interoperability partnerships are a combination of formal and informal agreements. The continued development of documented agreements would support the formalization of these partnerships to ensure clear roles and responsibilities relating to communications interoperability issues and decisions. Charleston indicates that a strategic planning process is underway, but no plan has been published. This strategy, as it gets adopted, can also support the prioritization of goals so that funding can be planned accordingly. While consideration for regional interoperability is provided by the LICC, funding decisions are largely driven by individual agency needs as opposed to a Lowcountry regionwide strategy.

Recommendations:

- Clarify state and federal membership in the decision-making group (e.g., LICC), and examine ways (e.g., varying schedules and locations) to increase rural public safety agency involvement (e.g., volunteer fire departments)
- Identify "RSAG" and its roles and responsibilities
- Reference all applicable agreements (e.g., memoranda of understanding, intergovernmental agreements) in the TICP and store them in an accessible format
- Develop, document, and implement a Lowcountry regional strategic plan (beyond the operational TICP) with participant approval, adoption, and acceptance, that takes into account a long-term funding strategy
- Align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Document the Lowcountry regional funding strategy for identifying sustainable funding sources (beyond grants) to cover lifecycle and recurring costs to operate the area's interoperability assets
- Broaden and champion a governance structure that will support regional communications interoperability
- Involve senior regional leadership in communications interoperability and long-term funding plans

Standard Operating Procedures (SOP): *Established Implementation*

The Charleston TICP consolidates existing county interoperable communications SOPs into a regional plan. It has been successfully distributed to all agencies and dispatch centers in the area, and there are plans to participate in regular interoperability training. Charleston officials indicated they were distilling the TICP procedures into a three-page quick guide to ensure ease of use and understanding by all responders, which is

commendable. Use of the SOPs were successfully demonstrated; however, additional information should be added to the TICP, including all available regional interoperable communications assets. The National Incident Management System (NIMS)/Incident Command System (ICS) is currently being implemented throughout the area. Command and control issues occurred in the TICP validation exercise (e.g., did not initiate comprehensive incident command structure, delay in designating communications unit leader) relating to NIMS/ICS procedures. Charleston has recognized some of these deficiencies, and is actively addressing the improvement plan (e.g., NIMS/ICS 300/400 classes).

Recommendations:

- Update TICP to incorporate all available interoperable communications equipment (e.g., mobile gateway not accounted for in TICP)
- Document, distribute, and verify all points of contact for each agency communications center
- Continue to implement regional interoperability SOPs across all participating agencies
- Continue basic and advanced training and exercises on SOPs (e.g., system resources) and for NIMS/ICS to ensure that all participating first responder agencies, particularly rural agencies, attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Multi-agency communications in the Charleston area is regularly accomplished using two 800 megahertz (MHz) systems and a very high frequency (VHF) shared system, along with national shared channels. During the TICP validation exercise, evaluators noted that the use of these systems "appeared second nature to most of the responding organizations and disciplines." Because the area is served by shared systems, the need for gateway patches is diminished. If gateways are used, sufficient training should be given to ensure proficient and proper use. Despite minor equipment usage issues, the exercise After Action Report noted, "[I]nteroperability was continuously maintained for participation personnel throughout the duration of the exercise." Despite these demonstrated successes, the TICP validation exercise was limited in its inclusion of federal agency participants. Officials from the area report that federal agencies are fully coordinated in the LICC and participate in multijurisdictional response as demonstrated through real world events. The area is encouraged to build on its success by continuing to further integrating state, federal, tribal, and support agencies in future tests.

Recommendations:

- Continue to involve state and federal agencies (e.g., public health, Federal Bureau of Investigation, U.S. Coast Guard) in day-to-day events and future exercises
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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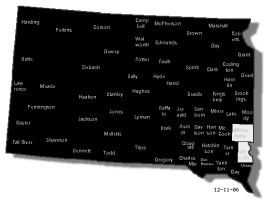
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Charleston County, Dorchester County and the City of Charleston use shared, 800 MHz, Motorola SmartZone™, analog systems (City of Charleston and Charleston County systems) that can be used to communicate with most local and county agencies. The state also has a statewide system (Palmetto 800 MHz SmartZone analog system) that is used by agencies in Berkeley and Dorchester counties. Berkeley County has a separate VHF system that is used for primary communications and is interoperable with the other counties using gateways and cache radios. Berkeley, Charleston, Dorchester counties and the Charleston Police Department also have 800 MHz cache radios. Most these radios are from Charleston County. Charleston and Dorchester counties have Raytheon JPS Communications ACU-1000 and Communications-Applied Technology Incident Commander's Radio Interface (ICRI) gateways. The Charleston Police Department also has an ICRI gateway, and the State of South Carolina has an ACU-1000 gateway. Charleston County and emergency medical services have shared 800 MHz channels. Berkeley County is also purchasing an ICRI gateway.

Sioux Falls (South Dakota)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

South Dakota designated Sioux Falls as its metropolitan area (area), which includes the City of Sioux Falls and the counties of Minnehaha and Lincoln.

Governance: *Advanced Implementation*

South Dakota has demonstrated strong governance across multiple jurisdictions. The area's Metro Management Council (composed of representatives from the City of Sioux Falls, Minnehaha County, and Lincoln County) developed the regional Tactical Interoperable Communications Plan (TICP). The communications committee includes the area's public support disciplines and local leadership, but appears to lack federal involvement, which would be beneficial to include in the future. The area has published and active agreements, which are frequently updated and reviewed. South Dakota should be commended for its multiyear funding plan that takes into account local and state funding. Once revised, the area should distribute the strategic plan to all regional public safety agencies.

Recommendations:

- Proactively recruit new participants, including state and federal agencies
- Align local and state strategic planning efforts to promote regional interoperability needs are met

Standard Operating Procedures (SOP): *Advanced Implementation*

Previously established communications policies and procedures from the area were incorporated into the TICP, thereby providing a solid basis for implementing the SOPs across the area. These formalized SOPs are used regularly, and updates are frequently distributed to all public safety agencies. The area has been practicing the interoperable communications aspects of the National Incident Management System (NIMS)/Incident Command System (ICS) for more than 1 year. Despite some minor glitches in the area's exercise (e.g., the ICS Form 205 was not updated throughout the exercise and the Communications Unit Leader was not clearly identified to the participating agencies), the exercise evaluators stated that the area generally performed well.

Recommendations:

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Advanced Implementation*

The area successfully demonstrated correct use of the available interoperable communications equipment (e.g., statewide radio caches, national shared channels, gateways, statewide system) during the TICP validation exercise. For example, users demonstrated familiarity with set-up and effective use of cached radios after instruction by the radio cache manager. The area also demonstrated strong participation from the

state and federal agencies during the exercise. Sioux Falls officials indicate that shared channels and the shared system are used on a daily basis, and this day-to-day familiarity with the available interoperability solutions was adequately demonstrated by area first responders during the validation exercise.

Recommendation:

- Consider adding communications interoperability as component for all future exercises

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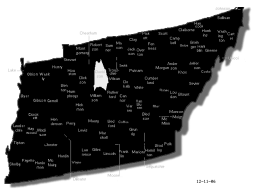
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

South Dakota employs a statewide very high frequency (VHF) digital trunked radio system that consists of tower sites across the state networked to a controller located in Pierre. Roaming allows the user to traverse the state without losing communications, and the system allows individual agencies to maintain private communications with agency talk groups. The digital aspects of the system allow for clear communications over 90 percent of the geographic area of the state, including Sioux Falls in Minnehaha County. Lincoln County uses its own conventional ultra high frequency radio system. Interoperability between Minnehaha and Lincoln counties is achieved by mobile repeaters and portable radios programmed on the statewide trunked system. A backup conventional system is in place to allow conventional VHF radios access to the system via dispatcher-enabled console patch. The metropolitan area uses a mixture of shared channels and talk groups, gateways, and cached radios to provide interoperability among regional first responders.

Nashville (Tennessee)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

The State of Tennessee designated Nashville as its metropolitan area (area), which includes the City of Nashville, State Capitol Region and agencies within the Metropolitan Davidson County area.

Governance: *Intermediate Implementation*

The Nashville area has established an Interoperability Committee within the Tennessee Homeland Security District 5 that is beginning to establish interoperability as a priority across the area. The Interoperability Committee is a fairly new, ad hoc group that was established to develop the Tactical Interoperable Communications Plan (TICP). The area's officials stated that the area was formalizing agreements among the member agencies, but current partnerships were still primarily based on verbal agreements. The continued development of documented agreements would support the formalization of these partnerships to ensure clear roles and responsibilities relating to communications interoperability issues and decisions. A strategic plan for the area has been developed, but it has not yet been approved by the member agencies, making it difficult to determine whether area agencies are committed to carrying out the plan. Fiscal support for the area's interoperability efforts has come primarily through grant funding and does not address funding for recurring expenses (e.g., operations and maintenance). It is not clear whether these funds are being used for priorities established by the regionwide governance group or whether long-term funding strategies have been developed.

Recommendations:

- Establish a committee charter and encourage formal membership to migrate to a decision-making group that includes all first responder agencies
- Document and formalize the necessary agreements (e.g., memoranda of understanding), to include local, state, and federal partnerships, to achieve regional interoperability
- Encourage full review, approval, adoption, and acceptance of the strategic plan by all participants and attempt to align local and state strategic planning efforts to ensure that regional interoperability needs are met
- Encourage the development of a regional interoperability funding plan as part of the strategy, including long-term (e.g., 3 to 5 years) funding sources (in addition to grants)
- Consider the direct involvement of a high-level official, with political and fiscal authority, to specifically focus on communications interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation*

The Nashville area has based its TICP on components of the Tennessee Emergency Management Plan already in place to address policies and procedures for communications interoperability. The TICP has since been disseminated to the agency dispatch centers to promote awareness of the procedures. During the TICP validation exercise, the participating agencies demonstrated success in the use of the equipment SOPs as defined in the TICP. The area has been working to implement the National Incident Management System (NIMS)/Incident Command System (ICS) over the last 6 months, which implies that the area is still in the

earlier stages of implementing NIMS/ICS policies and procedures. This fact could be confirmed based on the degree of difficulty the area faced in following command and control procedures in its exercise (e.g., multiple incident commanders, difficulty identifying the Communications Unit Leader [COML]). This should be a focus for continued training and exercise.

Recommendations:

- Continue to maintain, review, and update SOPs, and disseminate to all included organizations
- Ensure that regional SOPs are aligned with those documented in statewide operations plans
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

---

Usage: *Established Implementation* 

The area uses shared channels and shared system (Nashville 800 megahertz [MHz] system) on a daily basis and demonstrated proficiency in this area during the TICP validation exercise. Gateways and radio caches are available for agencies with disparate systems, and both methods were successfully used during the exercise. Despite the active participation of the state in TICP development, there was little state or federal participation in the validation exercise. The area is encouraged to build on its successful exercise and further integrate State, Federal, and support agencies in future tests.

Recommendations:

- Continue to exercise and train on applicable means of communications interoperability to improve familiarity of use
- Involve state and federal agencies (e.g., Tennessee Department of Health, Department of Transportation) in training and exercises
- Consider adding communications interoperability as a component of all future exercises

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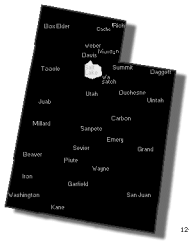
Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Four shared systems are in use in the greater Nashville area, including two 800 MHz trunked systems and two very high frequency (VHF) systems. There are also various VHF, ultra high frequency (UHF), 700 MHz, and 800 MHz mutual aid channels in the area. Many gateways and consoles are available for patching; however, the Nashville area prefers to use patches as a last resort. The Tennessee Emergency Management Agency (TEMA) assumes that the TICP will be expanded to include counties surrounding the Nashville area. The TICP is the basis for a coordinated approach to interoperability communications in the area; however, future funding will be coordinated through TEMA. Coordination with TEMA will ensure that TICP radio equipment purchases by independent jurisdictions are managed properly.

Salt Lake City (Utah)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Established Implementation*

Utah has designated Salt Lake City as its metropolitan area (area), which includes all cities, townships, and jurisdictions within Salt Lake County.

Governance: *Advanced Implementation*

The Utah Wireless Integrated Network (UWIN) is successful in establishing communications interoperability as a regional priority. The UWIN, a wireless intergovernmental network that will leverage existing state resources (e.g., Utah Communications Agency Network [UCAN]), was established by executive order of the governor in November 2003. Within UWIN, there is a Governance Board and a Technology Steering Committee that include the local public safety, state, and federal agencies. The area should be commended for having formal and active agreements that facilitate interoperability (including the Tactical Interoperable Communications Plan [TICP]) that are signed by all included organizations and reviewed after every update. While strategic goals have been established through the UWIN, the area appears to lack a formal strategic plan focused on interoperable communications. Despite the apparent lack of a strategic plan, Salt Lake City should be commended as a model for how its budget and communications equipment procurement decisions are made with consideration for regional interoperability, including covering recurring costs (operations and maintenance). The area has also demonstrated a successful long-term funding strategy for the implementation of the UCAN system. Based on the activities of the governor in creating UWIN and the subsequent actions of the group, it appears that there is strong local, regional, and state support for interoperable communications in Salt Lake City.

Recommendation:

- Develop a strategic plan beyond the operational focus of the TICP, with participant approval, adoption, and acceptance

Standard Operating Procedures (SOP): *Intermediate Implementation*

The TICP provided the area with the first formal regional interoperable communications SOPs. The area participated in additional training focused on SOPs, and has taken further steps to disseminate these policies to public safety agencies within the area, including to dispatch centers. With the recent adoption of the TICP, the area has begun implementing the National Incident Management System (NIMS)/Incident Command System (ICS) to fire, law enforcement, and emergency medical service agencies. While the area indicated that both equipment SOPs and NIMS/ICS procedures have not been formally adopted, the exercise reflected proficiency in execution of the practices. However, it was noted in the After Action Report (AAR) that there was confusion with communications unit roles and responsibilities during the event.

Recommendations:

- Continue efforts to implement SOPs as formalized through the TICP

- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

Most of the public safety agencies in the area use the existing regional shared system (UCAN) as their primary communications system. The AAR indicates that area's participants are accustomed to working together as a team and are able to demonstrate proficiency in using interoperable communications when needed. While patches were used effectively in some areas of the exercises, consistent use of gateways was not demonstrated in the exercise. In addition, although several large area agencies operate radio caches, their deployment was not practiced during the TICP validation exercise.

Recommendations:

- Regularly train, test, and exercise deployment of regional interoperability resources (e.g., gateway) to improve proficiency
- Consider adding communications interoperability as component for all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The UCAN provides Motorola® 800 megahertz (MHz) SmartZone™ infrastructure in the Salt Lake City area. Virtually all public safety agencies in the area use UCAN as their primary communications system. The only exceptions are Salt Lake City, which operates a Motorola SmartZone 800 MHz Specialized Mobile Radio system within its jurisdictional boundary, and Murray City, which operates a conventional 800 MHz network within its jurisdictional boundary. The State of Utah owns and operates Motorola Omni-Link infrastructure in the Salt Lake area that enables interagency connectivity between UCAN, Salt Lake City, and other communications resources.

The UCAN near-term focus appears to be on re-banding, which includes replacing some radios, reprogramming many (i.e., 15,500) radios, retuning infrastructure (60 sites and 26 standalone repeaters). The UCAN, along with Motorola Omni-Link infrastructure, will provide additional dispatch center patches statewide. This type of interoperability will also be used for future mutual-aid solutions. The UWIN Technology Steering Committee is also addressing an initiative for a broadband wireless pilot and a request for proposals that could lead to interoperable broadband communications in the more distant future.

Northeast Quadrant (Vermont)

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The State of Vermont has designated the "Northeast Quadrant" as its metropolitan area (area). The Northeast Quadrant includes Caledonia, Essex, and Orleans counties.

Governance: *Established Implementation*

There is demonstrated political and fiscal leadership in the area with a strong push toward statewide interoperability. Interoperable communications funding is a priority for the area and the state as a whole; budgets are developed and equipment is procured according to strategic goals. However, funding is currently based on federal grants, and there is no long-term regional funding plan for recurring expenses, without which there is no guarantee of continued ability to operate and maintain existing interoperability infrastructure. The Vermont Communications Committee (VCOMM) established the Regional Interoperable Communications Committee (RICC) in March 2006 to create the Tactical Interoperable Communications Plan (TICP). The RICC includes local, state, and federal representation and has both a technical and an operations working group. The area has published and active agreements (signed memoranda of understanding [MOU] for VCOMM) but has not yet put the agreements into practice. There are formal partnerships among the Vermont Sheriff's Association and the Vermont Police Association, and informal partnerships with the remaining public safety agencies in the area. The area is working toward the development of a regional strategic plan but it has not yet been adopted by all agencies, and it is unclear whether the plan is aligned with statewide strategic planning efforts.

Recommendations:

- Ensure that all applicable local, state, and federal agencies (and international border interoperable communications efforts as applicable) are involved in the decision-making group and define roles and responsibilities as part of the group
- Document and formalize agreements (e.g., MOUs) among all participating agencies to achieve regional communications interoperability
- Continue to work toward approval, adoption, and acceptance of the regional strategic plan
- Clarify the relationship between the regional and statewide strategic planning efforts
- Incorporate a regional interoperability funding strategy into the strategic plan, with consideration for funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts
- Continue to broaden and champion a governance structure that would more fully support regional interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation*

The TICP provides the first regional communications SOPs for the Northeast Quadrant. The plan is still under development and will be formalized and disseminated to participating agencies in fiscal year 2007. National Incident Management System (NIMS)/Incident Command System (ICS) is a high priority for the public safety agencies at local, county, and state levels but has only recently been implemented. Recent

NIMS/ICS implementation is indicative of lower responder familiarity of command and control SOPs. The exercise demonstrated the participants had initial confusion in how to strictly follow the SOPs for command and control responsibilities, including the Communications Unit Leader; however, once established they were able to perform the required duties. During the exercise, the participants demonstrated a need for further training on the regional SOPs for gateways.

Recommendations:

- Ensure all regional interoperability SOPs are incorporated into the TICP and distributed to participating agencies
- Regularly practice SOPs to increase proficiency in their use (e.g., gateway SOPs)
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

Northeast Quadrant officials indicated that there is little need for interoperable communications in the area. The area does not regularly use its interoperable communications equipment as a result. During the TICP validation exercise, the participants were successful in using shared channels and gateways for interoperability, and amateur radios were used for backup communications. The exercise involved public safety agencies across all levels of government (e.g., Vermont State Police, Customs and Border Protection), which is commendable.

Recommendations:

- Regularly test and exercise deployment of all applicable regional interoperability resources, including gateways and shared channels, to improve proficiency
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

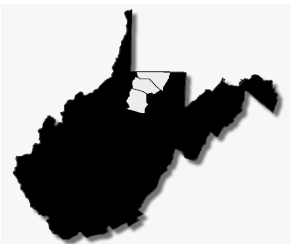
Technology Overview

Vermont's Northeast Quadrant has limited interoperability options because there are no shared systems or available cache radios. Limited interoperability could be established through shared channels, although not all agencies serving the metropolitan area have access to these shared channels. Alternatively, interoperability could be enabled using console patches at dispatch centers or by use of either the City of Newport or the state mobile gateways.

Long-term goals are to expand the number of radio channels available, specifically the nationally available very high frequency (VHF) VCALL/VHF VTAC and ultra high frequency (UHF) UCALL/UHF UTAC channels. The current network includes multiple agencies on state, county, and local levels that use the NIMS/ICS. These agencies include the Vermont Department of Health and Vermont Emergency Management. Most of the existing dispatches in Vermont are done through public safety answering points (PSAP). The state police have four PSAPs. The PSAPs perform various services for law enforcement, fire, and emergency medical services. This shared system is used on a daily basis. The existing network will be expanded to assist selected communities with core coverage needs. Lastly, services will be expanded to include data communications for the first responder community, when funding is available, and to assist first responder entities in enhancing their internal communications.

Morgantown (West Virginia)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Established Implementation*

The State of West Virginia has designated the "Tri-County" area of Harrison, Marion, and Monongalia counties as its metropolitan area (area).

Governance: *Intermediate Implementation*

The State of West Virginia has taken the lead in developing the West Virginia Incident Response Plan (WVIRP), and a multidiscipline governing board has been designated to oversee this statewide effort. Under the leadership of Harrison County Emergency Services, the Tri-County Region was part of the first implementation phase of the WVIRP radio system. The Tactical Interoperable Communications Plan (TICP) was developed for this area as part of this effort. Informal agreements are in place throughout the area to ensure interoperability. While the state may be involved in strategic planning (including multistate strategic planning), it is unclear whether the Tri-County area has developed a strategic plan for their area. It is also unclear whether the strategic plan addresses regional agencies not currently supported by the tri-county system, such as the fire community in Monongalia County. Funding is currently based on federal grants and there is no long-term regional funding plan based on sustainable funding sources for recurring expenses, without which there is no guarantee of continued ability to operate and maintain existing interoperability infrastructure. .

Recommendations:

- Continue to participate in statewide planning committee efforts, and support multi-state interoperability efforts
- Document and formalize agreements (e.g., memoranda of understanding) among all participating agencies to achieve regional interoperability
- Develop and implement a strategic plan (beyond the operational focus of the TICP), with participant approval, adoption, and acceptance
- Ensure that all public safety entities are included in a strategic plan (e.g., clarify whether Monongalia fire service is involved)
- Align local and statewide strategic planning efforts to ensure that regional interoperability needs are met
- Incorporate a regional interoperability funding strategy into strategic plan, such as considering funding models (in addition to grants) that can leverage local, regional, and statewide strategic planning efforts
- Continue to broaden and champion a governance structure that would more fully support regional interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The Tri-County area's TICP incorporates policies and procedures for the use of the state's new West Virginia Interoperability Radio Project (WVIRP) Project 25 (P25) system, which was developed under a DHS Interoperable Communications Equipment grant. These policies have been disseminated to all included agencies, as well as regional dispatch centers. During the TICP validation exercise, the participants successfully established interoperable communications through the shared system and console patching (the

area's only means of interoperability). West Virginia began implementing the National Incident Management System (NIMS) less than one year ago. While still a new process for the area, NIMS/ Incident Command System (ICS) was demonstrated during the exercise with only minor problems. As detailed in its exercise Improvement Plan, gaps in these areas will be addressed through additional training and exercises.

Recommendations:

- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Established Implementation* 

The area is proficient at regularly using console patches to connect multiple agencies across different systems, including an ultra high frequency (UHF) system. The use of these console patches and the UHF shared system were proficiently demonstrated during the TICP validation exercise. It was noted in the exercise that all jurisdictions were familiar with the shared system's use and operation. It should be noted that Morgantown does not have any radio caches or mutual aid channels available. The area had a successful exercise, but did not integrate all state, federal, and selected local agencies (e.g., Monongalia Fire Service), which could present interoperability challenges.

Recommendations:

- Involve local, state, and federal agencies (e.g., Monongalia fire service, National Guard) in training and exercises
- Consider adding communications interoperability as component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

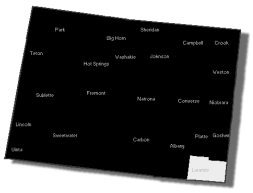
Technology Overview

The agencies within the Tri-County area operate on multiple conventional, very high frequency and UHF radio systems. Interoperability is achieved through console patches as well as the WVIRP, a P25 standards-compliant, digital, trunked, UHF radio system. The consoles have the ability to patch channels/talk groups from all systems and all counties in the Tri-County area. These consoles are located in three dispatch centers that are staffed around the clock.

The Tri-County area will continue to use console patches and the WVIRP radio system. The WVIRP is expected to be implemented statewide in the future.

Laramie County (Wyoming)

Tactical Interoperable Communications Scorecard



Summary

Governance: *Advanced Implementation*

Standard Operating Procedures: *Advanced Implementation*

Usage: *Advanced Implementation*

The State of Wyoming has designated Laramie County, the City of Cheyenne, and public safety agencies serving state government in the Capitol Complex as its metropolitan area (area).

Governance: *Advanced Implementation*

The Wyoming Public Safety Communications Commission (PSCC) has successfully established communications interoperability as a public safety priority in the area. The PSCC was created and formalized in 2004 by state statute and is the primary communications committee in the area. The PSCC consists of five working groups with significant local, state, and federal participation—Administration and Funding, WyoLink Operations, Spectrum, Inter-operability Executive Committee, and the State Agency Law Enforcement Communications Committee (SALECS). The Wyoming PSCC is in the process of developing and publishing active agreements (e.g., WyoLink Handbook and Membership Agreement), but currently is operating with informal and undocumented agreements. Laramie County has a strategic plan in place that specifically supports the use of a shared, statewide system (WyoLink) that allows interoperable communications among the agencies in the area. The area has a long-term funding plan in place to build, maintain, and operate the WyoLink system through the use of state and federal funding. The governor has been active in prioritizing interoperability for public safety agencies in both the state and in Laramie County with proven political and fiscal support.

Recommendations:

- Document and formalize the necessary agreements (e.g., memoranda of understanding), including local, state, federal, and tribal partnerships to achieve regional interoperability

Standard Operating Procedures (SOP): *Advanced Implementation*

The area demonstrated successful consolidation of separate jurisdictional SOPs (City of Cheyenne and Laramie County's recently consolidated communications center and SOPs) into the Tactical Interoperable Communications Plan (TICP). These regional SOPs for interoperability have been distributed to all organizations, and Laramie County plans to participate in additional TICP and Communications Unit Leader training. The area has indicated that as the WyoLink system becomes fully operational across the state, updated SOPs will be included in the TICP and disseminated. Laramie County began implementing the National Incident Management System (NIMS)/Incident Command Structure (ICS) more than one year ago, and all public safety agencies in the area use these procedures. Overall, command and control was performed successfully during the TICP validation exercise; however, because of the limited scope of the exercise, assessing the use of regional SOPs and command and control in a multijurisdictional environment was limited. Laramie County indicated that the TICP would be expanded to include surrounding jurisdictions in the future.

Recommendations:

- Update and disseminate the TICP once the WyoLink system is implemented

- Continue basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Advanced Implementation* 

Laramie County frequently uses gateway console patches in day-to-day operations and uses shared channels daily. The area fully demonstrated interoperable communications capabilities (e.g., through shared channels and gateways), including state and federal agencies, although the TICP validation exercise was limited in scope to agencies in Laramie County. In the future, multijurisdictional exercises should test the use of the new WyoLink system within the area.

Recommendations:

- Conduct more robust exercises to test interoperable communications capabilities (e.g., additional participants, additional local, state, federal, and tribal agencies)
- Consider adding communications interoperability as a component of all future exercises

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Public safety communications in the State of Wyoming currently take place on multiple standalone very high frequency (VHF) radio systems. The state is currently replacing these outdated systems with a statewide VHF high band digital trunked system designed to meet the Project 25 standards. The installation is scheduled in phases, with the first phase providing coverage for Laramie County. This first phase of the installation is expected to be complete by the end of 2006, and the entire system is planned to be completed by late 2007.

American Samoa

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Early Implementation*

Usage: *Early Implementation*

American Samoa designated the entire Territory of American Samoa as its metropolitan area (area). The area consists of five rugged, highly eroded (and extinct) volcanic islands and two coral atolls. The American Samoa islands are Tutuila, Aunu'u, Ofu, Olosega, Ta'u, Swains, and Rose Islands. (Swains and Rose Islands are not covered under the systems discussed in this summary.)

Governance: *Intermediate Implementation*

The Territorial Emergency Communications Committee (TECC) was established in 2005 and reports to the Office of the Governor. TECC oversaw the creation of the Tactical Interoperable Communications Plan (TICP); this formal committee includes local agencies, the National Oceanic and Atmospheric Administration, and the Federal Aviation Administration. This mix of local and federal participation represents a positive step in achieving multijurisdictional communications interoperability plans. Beyond the operational focus of the TICP, the area does not have any formal interoperable communications agreements and has a mix of formal and informal partnerships among the public safety organizations in the area. American Samoa does not have a strategic plan for regional interoperable communications, but has recently initiated planning efforts. This strategy, as it develops, can also support the prioritization of goals so that funding can be planned accordingly. Currently, jurisdictions develop budgets within their jurisdiction through federal grant money allocations and have no other sustainable funding sources. Interoperable communications planning began in 2005 for American Samoa, but since that time no additional federal grant monies have been allocated to the area for future investments and lifecycle costs. With a recent push for more interoperability support and the governor's direct involvement, leadership in American Samoa provides political support for regional interoperability.

Recommendations:

- Clarify federal membership in the decision-making group (e.g., TECC), and document roles and responsibilities
- Develop, document, and formalize agreements (e.g., signed memoranda of understanding [MOU] with defined roles and responsibilities) among all participating agencies relating to regional interoperability
- Reference all applicable agreements (e.g., MOUs, intergovernmental agreements) in the TICP and store them in an accessible format and establish a regular review process so they remain relevant
- Develop, document, and implement a regional strategic plan (beyond the operational TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (beyond grants)
- Align regional and territorywide strategic planning efforts to ensure that regional needs are met
- List near-term territorywide interoperability funding priorities and identify a funding plan
- Develop and implement a territorywide approach to long-term (e.g. 3 to 5 years) sustainable funding that is consistent with the strategic plan
- Continue to champion a governance structure that will support regional communications interoperability, and involve senior regional government leadership in long-term funding plans

Standard Operating Procedures (SOP): *Early Implementation*

The SOPs in the American Samoa TICP represent the area's first regional plan for interoperable communications. Despite having the TICP adopted by all participating agencies, no steps have been taken to disseminate it to ensure its incorporation in operations (e.g., distribution to all included agencies and dispatch centers). During the exercise, participants did not demonstrate proficiency in executing the TICP policies and procedures (e.g., problems activating gateways). The area has not yet begun to implement the National Incident Management System (NIMS)/Incident Command System (ICS), and participants were unable to demonstrate proficiency during the exercise (e.g., unified command was not established, Communications Unit Leader was designated but not announced).

Recommendations:

- Develop regional interoperability SOPs (beyond the TICP) with acceptance by first responder agencies
- Distribute and put SOPs into practice throughout the territory through regular training, exercises, and usage
- Develop training policies and requirements for inclusion in the TICP to ensure broad understanding of the SOPs
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

Usage: *Early Implementation*

American Samoa does not frequently encounter situations that require communications interoperability solutions; however, its shared system is used for day-to-day operations. TICP validation exercise participants communicated primarily through face-to-face communications rather than through interoperable communications equipment, but were able demonstrate some familiarity with gateways (e.g., fixed gateway patched successfully) when required. The limited scope of the exercise did not provide an opportunity for participants to fully stress their interoperable communications capabilities. As such, the participants were asked to test the use of their available interoperability assets and did not demonstrate proficiency in their use (e.g., incident command experienced problems operating the cache radio). Additionally, because the exercise was conducted in a mix of English and Samoan, and some documentation is in Samoan, outside responders may encounter a language barrier during a mutual aid response.

Recommendations:

- Regularly test and exercise deployment of and procedures for territory's interoperability resources (e.g., gateways) to improve proficiency and familiarity of use
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The territory's public safety personnel use an ultra high frequency (UHF) radio system, with one channel for fire and police. More channels have recently been found, and the Territorial Office of Homeland Security will work with Department of Public Safety to use them. The Emergency Medical Services uses its own UHF radio system. Airport Rescue and Fire Fighting is on an aviation band very high frequency radio system. All radio systems have severe coverage and maintenance issues. The area would like to move toward a Project 25 compliant radio system for all agencies on the islands and would also like to obtain communications links to nearby islands for purposes of marine interdiction and mutual aid. A lack of funding is the main issue preventing interoperability progress.

Guam

Tactical Interoperable Communications Scorecard

Summary

Governance: *Established Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

Guam designated the entire island territory of Guam as its metropolitan area (area).

Governance: *Established Implementation*

The Interoperable Communications Working Group (ICWG) group, which created the Tactical Interoperable Communications Plan (TICP), includes all public safety organizations in the area, and reports directly to the Homeland Security Advisor and the Governor. Guam operates through one level of government and has formalized agreements within the government; the area is developing additional memoranda of understanding with the Department of Defense (DoD), U.S. Coast Guard, and the National Guard. Although Guam has encountered problems in formalizing an agreement, its efforts to work with DoD to establish such an agreement are commendable. Guam does not currently have a strategic plan for regional interoperable communications, but appears to be developing regional strategic goals. The Guam Police Department provides for the maintenance costs associated with the area's shared system backbone, but the area does not have a long-term funding strategy for additional lifecycle costs specific to interoperability needs. The Governor and other regional leadership have clearly made regional interoperability a political priority.

Recommendations:

- Continue to involve area and federal organizations in the decision-making group (e.g., ICWG), and document roles and responsibilities as part of group
- Establish a regular review process to ensure that agreements remain current and relevant
- Develop, document, and implement a regional strategic plan (beyond the operational TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (beyond grants)
- Align regional and area-wide strategic planning efforts to ensure that regional interoperability needs are met
- Develop and implement a area-wide approach to long-term (e.g., 3 to 5 years) sustainable funding that is consistent with the strategic plan

Standard Operating Procedures (SOP): *Intermediate Implementation*

The SOPs included in the Guam TICP represent the area's first regional plan for interoperable communications, but the area has taken some steps to disseminate the TICP (e.g., TICP Implementation Workshop to train area agencies). During the exercise, participants did not demonstrate familiarity with the TICP policies and procedures (e.g., shared talk groups documented in TICP are not programmed into radios). While no training procedures currently exist, there are plans to establish these procedures. National Incident Management System (NIMS)/Incident Command System (ICS) has not yet been implemented in Guam, but the area is working to establish compliance among the public safety organizations.

Recommendations:

- Develop regional communications interoperability SOPs (beyond the TICP) with acceptance by area first responder agencies
- Distribute and put SOPs into practice throughout the area through regular training, exercises, and usage
- Develop training policies and requirements for inclusion in the TICP
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

Guam uses interoperable communications solutions almost exclusively for mutual aid response efforts. During the TICP validation exercise, participants were able to demonstrate familiarity with console patching; however, they generally were unable to establish interoperable communications among all participating agencies (e.g., Guam Civil Defense Agency, public health, power department). The shared talk groups noted in the TICP were not programmed into the portable radios, and no shared channels were available. However, participants were able to demonstrate proficiency in using the area's shared system (used in day-to-day events).

Recommendations:

- Regularly test and exercise the deployment of and procedures for the area's communications interoperability resources (e.g., gateway) to improve proficiency
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Government of Guam (GovGuam) operates an 800 megahertz (MHz), analog, Motorola Automatic Multiple Site Selection SmartNet™ radio system. All GovGuam agencies use this system. Interoperable communications between GovGuam agencies and their federal partners is achieved through console patching.

The SmartNet system is very old, and Motorola no longer makes parts for it. Guam is beginning the process of looking into purchasing a new 700 or 800 MHz trunked radio system.

Northern Mariana Islands

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

The Northern Mariana Islands designated the entire Commonwealth of the Northern Mariana Islands (CNMI) as its metropolitan area (area), which consists of a chain of 14 volcanic islands in the southwestern Pacific Ocean. Of these 14 islands, 3 are inhabited: Saipan, Tinian, and Rota. However, about 90 percent of CNMI's population lives on Saipan, which is the capital.

Governance: *Intermediate Implementation*

The Tactical Interoperable Communications Plan (TICP) Working Group was established in 2005 to create the TICP and includes local and state agencies (e.g., public health, state police, Port Authority). The area has a mix of formal and informal partnerships among agencies that would be supported by formalized agreements. Although some preliminary planning has begun, CNMI does not have a strategic plan for interoperable communications in place. Through federal grant funds, organizations within CNMI give some consideration to regional communications interoperability, but have faced considerable decline in local funding (e.g., pullout of garment companies, decline of tourism). Despite the governance challenges the territory faces, with the mayor's participation on the governance committee and the governor acting as the final decision-maker on interoperability decisions, the area's leaders demonstrate that interoperability is a political and fiscal priority.

Recommendations:

- Clarify federal membership in the decision-making group (e.g., TICP Working Group), and document roles and responsibilities
- Develop, document, and formalize agreements (e.g., signed memorandum of understanding [MOU] with defined roles and responsibilities) among all participating agencies relating to regional interoperability
- Reference all applicable agreements (e.g., MOUs, intergovernmental agreements) in the TICP and store them in an accessible format
- Establish a regular review process to ensure that agreements remain current and relevant
- Develop, document, and implement a regional strategic plan (beyond the operational TICP) with participant approval, adoption, and acceptance, that takes into account a long-term communications funding strategy (beyond grants)
- Align local and CMNI-wide strategic planning efforts to ensure regional interoperability needs are met
- Develop and implement a regional approach to long-term (e.g. 3 to 5 years) sustainable funding that is consistent with the strategic plan
- Continue to champion a governance structure that will support regional communications interoperability, and involve senior regional government leadership on long-term funding plans

Standard Operating Procedures (SOP): *Established Implementation*

The Northern Mariana Islands incorporated existing policies and procedures (e.g., from the Civil Defense Office very high frequency [VHF] systems policies) into the TICP. Since these SOPs were already well established and used frequently, the public safety agencies in the area were well positioned to adopt the TICP. However, because the area's previous SOPs relate to the old system, the area should take steps to ensure the TICP includes updated SOPs that relate to the new 800 megahertz (MHz) system. The area has begun to disseminate these polices and procedures (e.g., distributed to dispatch centers, available with gateways) to participating agencies. Because of the limited scope of the exercise, interoperable communications solutions were not always required, and participants were therefore unable to

demonstrate proficiency in executing all of the SOPs listed in the TICP (e.g., fixed gateway request not observed, mobile gateway request procedures not followed). The area began implementing National Incident Management System (NIMS)/Incident Command System (ICS) less than 6 months ago, which implies that the area is still in the earlier stages of implementing NIMS/ICS policies and procedures. This fact was evident during the exercise, as the participants did not demonstrate familiarity with command and control processes (e.g., no incident command was established, incomplete and inaccurate ICS Form 205).

Recommendations:

- Continue to distribute updated regional interoperability SOPs (e.g., document demonstrated exercise procedures not originally included in the TICP)
- Develop training policies and requirements for inclusion in the TICP
- Initiate basic and advanced training and exercises to SOPs (include TICP implementation of communications unit) and for NIMS/ICS to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The CNMI regularly uses its shared 800 MHz system in day-to-day, task force, and mutual aid situations. While proficient in daily use, during the TICP validation exercise, participants experienced difficulties in demonstrating familiarity and proficiency in a tactical response situation using CNMI's interoperable communications equipment (e.g., radio cache and gateways). Although the scope of the exercise was not sufficient to require the use of any interoperable assets, evaluators noted that when participants did attempt to communicate via the shared systems, "no solution was observed to compensate for the significant queuing noted," and cellular and landline telephones communications were relied upon heavily.

Recommendations:

- Regularly test and exercise deployment of and procedures for territory's interoperability resources (e.g., radio cache, gateway) to improve proficiency
- Consider adding interoperable communications as an evaluation component for all future exercises and day-to-day activities

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The CNMI operates an 800 MHz, trunked, Motorola SmartZone™ radio system that the Department of Public Safety (DPS), Emergency Management Office (EMO), Public Health, Department of Public Works, Customs and Border Protection, and Immigration and Customs Enforcement use. Repeaters are located on Mt. Tapotchao, a console and central electronics bank are located at DPS, and another console is located at EMO. The Ports Authority, Utility Corporation, and Mayor's Office each run their own VHF radio systems. CNMI incorrectly specified cache radios in its TICP. The actual number of caches and the radios in them is unknown. The SmartZone system is 14 years old, and Motorola no longer makes parts for it. Furthermore, the CNMI jurisdictions are separated by large bodies of water, which makes reliable communications using their current system very difficult. The need for interoperability is apparent and would be easier with much newer technology (e.g., T1 or microwave backhaul links). CNMI would like to replace this system with a Project 25 system but does not have the funding for such an undertaking.

Puerto Rico

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Intermediate Implementation*

Usage: *Intermediate Implementation*

The Commonwealth of Puerto Rico (PR) has designated San Juan, the most populous area of Puerto Rico, as the metropolitan area (area). The San Juan area consists of the Bayamón, Guaynabo, and San Juan municipalities.

Governance: *Intermediate Implementation*

In March 2006, the Puerto Rico Communications Interoperability Committee (PRCIC) was established to develop the Tactical Interoperable Communications Plan (TICP) for the area. The PRCIC has operational, technical, and training working groups that include municipal, commonwealth, and federal agencies. The PRCIC is dedicated to developing interoperability across the commonwealth as a whole through strategic planning efforts. Although there are currently only informal agreements and partnerships among public safety agencies in the area, beyond the operational focus of the TICP, the area is working toward implementing the formalized TICP and regional SOP. The area does not currently base funding and equipment procurement decisions on regionwide interoperable communications goals, but is working to develop a more strategic, long-term funding plan. Recently in the area, there has been a commendable movement toward improving interoperability with the establishment of the PRCIC, but the area does not have a sustained history of dedicated fiscal and political support for interoperable communications.

Recommendations:

- Continue to support the decision-making group through regularly scheduled meetings and actively working issues to address regional (tactical and strategic) interoperability
- Continue to document and formalize agreements (e.g., memoranda of understanding) among all participating agencies to achieve regional interoperability
- Continue the interoperability strategic planning process toward the development and implementation of a strategic plan, with participant approval, adoption, and acceptance
- Align regional and territorywide strategic planning efforts to ensure that regional communications interoperability needs are met
- Develop and implement a regional approach to long-term interoperability planning and sustainable funding
- Incorporate a regional interoperability funding strategy into a strategic plan, considering funding models (in addition to grants) that can leverage regional and territorywide strategic planning efforts
- Involve additional political leaders in championing a governance structure that would more fully support territorywide interoperability

Standard Operating Procedures (SOP): *Intermediate Implementation*

The TICP is the first regional communications interoperability SOPs for the San Juan metropolitan area, and the area has taken steps to disseminate the new policies and procedures to all of the organizations involved. Additionally, the area has begun to implement the SOPs through a tabletop exercise and three functional exercises. While still a very new process, the area is aggressively working toward full implementation of the

National Incident Management System (NIMS)/Incident Command System (ICS) with the involvement of fire, emergency medical services (EMS), law enforcement, and other public safety support services (e.g., public works, U.S. Coast Guard, Department of Transportation, National Guard). During the exercise, the participants encountered some difficulties following the SOPs for command and control, including an incomplete ICS Form 205 and multiple participants performing the Communications Unit Leader responsibilities.

Recommendations:

- Ensure all regional communications interoperability SOPs are in place and put into practice, and increase proficiency in their use
- Initiate basic and advanced training and exercises for NIMS/ICS (include communications unit training)
- Continue regular practice of NIMS/ICS to improve interoperable communications

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Usage: *Intermediate Implementation* 

The area has the capability of using multiple interoperable communications methods for day-to-day operations, but reports infrequent use and flexibility for incident interoperability. For example, during the exercise, the participants were able to demonstrate use of the Puerto Rico Emergency Management Agency (PREMA) gateway; however, EMS was not able to effectively communicate with the Fire Department. The radio cache was not used, and the shared system was used to support Police and Fire on different talk groups, but not as an interoperability method.

Recommendations:

- Regularly test and exercise deployment of regional communications interoperability resources to improve proficiency (e.g., shared system, gateway)
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

The Puerto Rico Police Department (PRPD) currently owns the only two trunked systems on the island. A Motorola® SmartNet II™ 800 megahertz (MHz) analog trunked system is supported by three tower sites and covers the City of San Juan and its vicinity. An EF Johnson® MultiNet™ 800 MHz analog trunked system is supported by 11 tower sites and covers all the other municipalities in Puerto Rico. Interoperability between the two systems is achieved by a fixed gateway and multi-protocol portable radios. PRPD is the only user of these systems. Most of the other public safety agencies are on very high frequency and ultra high frequency simplex systems. The PRPD also owns a large number of fixed and mobile gateways. Fixed gateways are installed at all the police regional headquarters for interoperability. Currently, these gateways are configured as standalone units. However, there is a plan to interconnect the equipment for remote operation. PREMA is currently acquiring a number of gateways as well.

U.S. Virgin Islands

Tactical Interoperable Communications Scorecard

Summary

Governance: *Intermediate Implementation*

Standard Operating Procedures: *Established Implementation*

Usage: *Intermediate Implementation*

The U.S. Virgin Islands metropolitan area (area) is composed of four islands: St. Croix, St. John, St. Thomas, and Water Island.

Governance: *Intermediate Implementation*

The Virgin Islands Office of Homeland Security established a communications committee to oversee the development and implementation of the Tactical Interoperable Communications Plan (TICP). The committee has local, state, and federal representation, including administrators from St. Thomas, St. John, and St. Croix. Although the area created regional SOPs in developing the TICP and organizations have accepted the plan, it is not yet in practice across the islands. The area indicates that there is a strategic plan addressing funding and operations; however, it is unclear if there is a strategic plan that incorporates interoperable communications beyond the operational focus of the TICP operational policies and procedures. It appears that limited and fragmented interoperable communications funding plans exist today (relying primarily on grants); the area plans to align budget management and equipment procurement with strategic interoperability goals but has not demonstrated that a long-term plan is currently in place. The area's leaders have demonstrated an understanding of the importance of interoperable communications and are working on further developing political and fiscal support.

Recommendations:

- Continue to support the decision-making group through regularly scheduled meetings and actively working issues to address regional (tactical and strategic) interoperability
- Continue to involve territory and federal organizations in the decision-making group and document roles and responsibilities as part of group support territory wide interoperability
- Document and put into practice the necessary interoperability agreements to ensure consistent communications plans
- In addition to the TICP, continue to develop and document a strategic plan with participant approval, adoption, and acceptance
- Involve additional leaders in championing a governance structure that fully supports territory wide interoperability

Standard Operating Procedures (SOP): *Established Implementation*

The Virgin Islands built on previously existing policies and procedures, including the Emergency Operations Plan, when creating the TICP. The area has disseminated its SOPs to all included organizations and dispatch centers, and has taken steps to further provide training on the SOPs through the TICP Workshop. The area had some level of difficulties implementing the SOPs during the exercise. The participants experienced problems with the shared channels and neglected to follow the TICP policies and procedures to resolve the issue. The area has been implementing National Incident Management System (NIMS)/Incident Command System (ICS) in the area for more than 1 year, and fire, emergency medical services (EMS), law enforcement, the Red Cross, and the Virgin Islands Rescue Squads are involved in training and

implementation. Based on the exercise, the area demonstrated familiarity with NIMS/ICS command and control aspects; however, the participants experienced deficiencies in full implementation (e.g., incomplete ICS Form 205 form and Communications Unit Leader designation confusion).

Recommendations:

- Continue to develop, standardize, and put into practice regionwide SOPs for all applicable means of interoperability (e.g., shared channels)
- Initiate basic and advanced training and exercises on SOPs (include communications unit implementation consistent with the TICP) to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance

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Usage: *Intermediate Implementation* 

The Virgin Islands has the capability to use shared channels and gateways on a daily basis. Although the gateway solutions are frequently used, there remains but one equipment manager for the nine gateways across the islands. Officials indicated that interoperable communications were effectively used during a recent real-world event. During the exercise, evaluators witnessed some evidence that the practitioners were less than familiar with some of their interoperability assets and their use. For example, the participants used the gateway but set it up in a location that could have impeded use. The multidisciplinary use of shared channels and the shared systems was minimal, which may have resulted in the lack of seamless interoperability. During the exercise, EMS was unable to communicate back to its dispatcher on either the EMS or mutual aid channels once they entered the Water and Power Authority gate. As such, an effective use of the mutual aid channel was not demonstrated and the use of the channel never designated by the Incident Command.

Recommendations:

- Regularly test and exercise deployment of regional interoperability resources (e.g., resolve shared channel and gateway issues involving state and federal agencies) to improve proficiency
- Consider adding communications interoperability as a component of all future exercises

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Below is a summary of the area's existing technology used to provide communications interoperability:

Technology Overview

Most public safety agencies in the U.S. Virgin Islands use simplex and repeated, conventional, very high frequency (VHF) systems. There are about 15 mobile gateways between St. Croix, St. John, and St. Thomas. Two shared channels are available for interoperability.

The Virgin Islands National Guard is transitioning from an 800 megahertz system to a VHF system. The Virgin Islands Office of Homeland Security intends to establish a radio cache in the future.