



Texas Department of Public Safety Report on Interoperable Communications to the Texas Legislature

August 2010



TEXAS DEPARTMENT OF PUBLIC SAFETY

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October 12, 2010

Dear Member of the Texas Legislature,

The Texas Department of Public Safety (Department) has worked closely with the Texas Radio Coalition, as well as key local and state stakeholders, to further the state's progress towards radio interoperability. The Department has completed a report on the status of the state's efforts toward interoperable radio communications. The report can be found at:

<http://www.txdps.state.tx.us/LawEnforcementSupport/documents/fullRpt.pdf>

Key items of interest within the report include:

- A breakdown of the \$80.865 million in federal interoperable communications funds that have flowed through DPS to state and local jurisdictions over the past several years ([p. 10](#))
- The status of the levels of interoperability achieved by each county, with a statewide average of 3.2 on the five-point interoperability scale, with Level 5 being the most interoperable ([p. 15](#))
- An outline of "Operation Texas Talks," a collaborative effort developed by the Department of Public Safety (DPS) and state and local partners to achieve maximum interoperability ([Appendix D](#))
- A refreshed version of the Statewide Communications Interoperability Plan ([Appendix F](#))

In 2008, the Texas Radio Coalition crafted a fiscal analysis of what full interoperability would cost statewide. This analysis, which can be found on [page 8](#), determined the total cost for full interoperability would amount to \$813 million. Achieving the maximum level of interoperability is entirely dependent on funding. In these economic times, we recognize that state funding may not be available for this project; however, we remain committed to using any available federal funding to enhance the interoperability of the state.

Please be advised that the 24 Texas Regional Councils of Governments (COGs) are presently refining their Regional Interoperable Communications Plan (RICPs) to provide more detail concerning public safety responder needs and requirements, system designs, and improved information concerning funding needs. The revised RICPs are due by 6/30/11. Upon review of those plans, we will update you again on the status of the present needs.

If you have any additional questions about the status of interoperability in Texas, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Steven C. McCraw".

Steven C. McCraw
Director

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Defining the Problem

For decades, inadequate and unreliable communications have compromised the ability of emergency responders¹ across the nation to perform mission-critical duties. Responders often have difficulty communicating when adjacent agencies are assigned to different radio bands, use incompatible proprietary systems and infrastructure, and lack adequate standard operating procedures (SOPs) and effective multi-jurisdictional, multi-disciplinary governance structures.

Radio communications systems throughout Texas vary greatly and many areas are impacted by limited operability of emergency response radio communications systems. Due to sparsely populated areas, barren regions, and piney forest wilderness areas, much of rural Texas has few land telephone lines and even less cellular telephone service. Even though urban areas tend to have more advanced communication systems, some agencies in these areas are still unable to communicate with other disciplines or neighboring jurisdictions.

Every day, more than 5,300 emergency response agencies respond to emergency and life-threatening incidents throughout Texas. They often rely on antiquated, vendor-proprietary, and/or stove-piped communication systems that operate in different radio frequency bands (e.g., VHF, UHF, 700/800 MHz) that limit their ability to share vital information with other agencies at the scene of an incident. In some cases, responders are not even able to talk to other responders within their own agency. (See “When They Can’t Talk, Lives Are Lost” publication from the National Association of Counties, Appendix C.)

This lack of communications “operability” and “interoperability” is putting the lives of Texas citizens and emergency responders at risk. **Communications operability** is the ability of emergency responders to establish and sustain communications in support of mission operations.² Mission operations include responding to and recovering from traffic incidents, house fires, medical emergencies, and critical incidents such as hurricanes, tornadoes, and wildland fires. According to the U.S. Department of Homeland Security’s (DHS) National Emergency Communications Plan (NECP)³, “communications operability is a critical building block for interoperability; emergency response officials first must be able to establish communications within their own agency before they can interoperate with neighboring jurisdictions and other agencies.” Due primarily to economic hardship, a number of agencies in Texas do not have public safety two-way radios to communicate with a dispatcher or others within their agency.

Communications interoperability is the ability of emergency responders to communicate among jurisdictions, disciplines, and levels of government using a variety of frequency bands, as needed and as authorized. System operability is required for

¹ The term ‘emergency responders’ refers to persons from the broad public safety and first responder community including but not limited to: law enforcement, fire, emergency medical services, emergency management, transportation, public works, and hospitals.

² Definition taken directly from the U.S. Department of Homeland Security’s National Emergency Communications Plan

³ NECP: http://www.dhs.gov/xlibrary/assets/national_emergency_communications_plan.pdf

system interoperability.⁴ It means, in any multi-agency, multi-discipline response, everyone is able to communicate as needed. Communications interoperability is essential for effective and efficient emergency response as it allows emergency response personnel to maximize resources in preparing for major planned events such as sporting events, large community gatherings, and music festivals. Without interoperable communications among police, fire, and Emergency Medical Services (EMS), the lives of Texas citizens and emergency responders are at risk.

There are a variety of challenges to achieving operability and interoperability – some are technical, some financial, and some stem from human factors such as inadequate planning and a failure to understand the importance and impact of interoperability. Key emergency response communications problems in Texas that are preventing or hampering basic operability and interoperability include, but are not limited to:

- ☑ A lack of radio communications equipment (i.e., no radios for some agencies)
- ☑ Limited coverage for some agencies
- ☑ Obsolete and ineffective radio systems, radio towers, and antenna systems
- ☑ Disparate frequency bands
 - Radios in one frequency band cannot directly communicate with a radio in another band, i.e., VHF radios cannot directly communicate with UHF or 700/800 MHz radios
- ☑ Limited and fragmented funding
- ☑ Many agencies across the state currently do not have the equipment necessary to meet the Federal Communications Commission mandate for narrowbanding – failure to meet this requirement by the end of 2012 will result in ZERO voice communications capabilities for non-narrowbanded agencies
- ☑ Proprietary radio systems that do not meet the current P25 suite of standards
- ☑ Varying procurement processes
- ☑ A lack of effective governance structures

The scenarios below outline actual incidents that have occurred in Texas and highlight the substantial problems that can result from a lack of operable and interoperable communications.

⁴ Definition taken directly from the U.S. Department of Homeland Security's National Emergency Communications Plan

Wildland Fires

Texas has significant wildland fires that cause a grave amount of damage and death. The Texas fire seasons of 2005, 2006, 2008, and 2009 resulted in 48,150 wildfires causing 23 fatalities, numerous injuries, 1,222 homes lost, and 4.1 million acres burned. Resources from across Texas and the nation were called upon to support these vast fire-fighting efforts. While these additional resources were extremely helpful, problems occurred when personnel from various local, state, and federal agencies were not able to communicate with one another. This made coordinating the unified command, operations, logistics, and air-to-ground communications extremely challenging. In some cases, communication simply did not exist. No area in Texas was immune to this problem.



Figure 1. Wildland fire destroying the home of a local fire chief

Hurricanes

Since Hurricanes Katrina and Rita in 2005 and Ike in 2008, more emphasis has been placed on coordinating emergency response to hurricanes in Texas. During Ike, major evacuations occurred along the Texas coast, including hospitals and other care facilities. As ambulances were brought in from across the state and nation to assist with this effort, they found that interoperable radio communications were either limited or completely non-existent. Police, fire, and EMS could not communicate, in some cases within their respective disciplines or with other agencies primarily because there were no interoperable solutions available. To achieve interoperability, emergency responders must either acquire at least three separate radios (for UHF, VHF, and 700/800 MHz), or integrate gateway devices which can be limited in capability and range. This inability to communicate resulted in greater expense, loss of operational efficiency, and wasted time switching between the radios and channels.



Figure 2. Evacuees before Hurricane Ike

Figure 2 depicts a crowded roadway in the path of Hurricane Ike, when millions of evacuees were at risk due to a lack of interoperable communications.

Border Communications

The 1,254-mile Texas-Mexico border presents numerous homeland security concerns, many of which center on the lack of basic radio operability in parts of the region as well as poor interoperable communications among local, tribal, state, and federal law enforcement agencies. In addition, daily incidents occur along the border when sheriffs' offices, fire departments, volunteer firefighters, law enforcement, and other emergency responders are unable to communicate with their counterparts on the other side of the U.S. border. There is currently an effort⁵ underway in coordination with the Federal Communications Commission (FCC), the DHS Office of Emergency Communications, and the U.S. State Department to enable cross-border communication, but this alone is not going to solve the cross-border communications issues.

When responders are unable to communicate within their own agency or across jurisdictions, disciplines, or levels of government, minutes are wasted and can result in loss of life and property.

Seamless Communications in Texas – the Vision

VISION Statement from Texas Statewide Communications Interoperability Plan:

By the end of 2015, provide all public safety and critical infrastructure responders at all levels of government, including local, county, special districts, tribal, state, and federal, with the highest level of real-time direct interoperable voice and data radio communications utilizing Standards-Based Systems.

To achieve this vision and enable responders to better protect the lives and property of Texans, the Texas Department of Public Safety (DPS) and the Texas Radio Coalition (TxRC) are working with each of the 24 Texas Councils of Governments (COGs), and with state agencies that rely on radio communications. The desired end result is to create and implement 24 Regional Interoperable Communications Plans (RICPs) in alignment with an overall state strategy to improve communications interoperability. These regional strategies are driven by needs at the regional levels, but are also compatible with the existing statewide system-of-systems strategy that, when implemented, will enable emergency responders across the state to communicate with whom they need to when they need to. As indicated in Figure 3, DPS and the TxRC will work with Texas responders to ensure the local, regional, and state communications strategies are in alignment with the NECP and National Strategy for Homeland Security.

Texas Interoperable Communications Strategy:
Create partnerships among emergency response agencies throughout Texas to build and maintain a cost-effective interoperable communications network using shared resources

⁵ FCC Rules and Regulations, 90.417 (b) enables communication with foreign stations if prior approval is requested and granted by the FCC.

Strategies & Plans

Goals/Vision

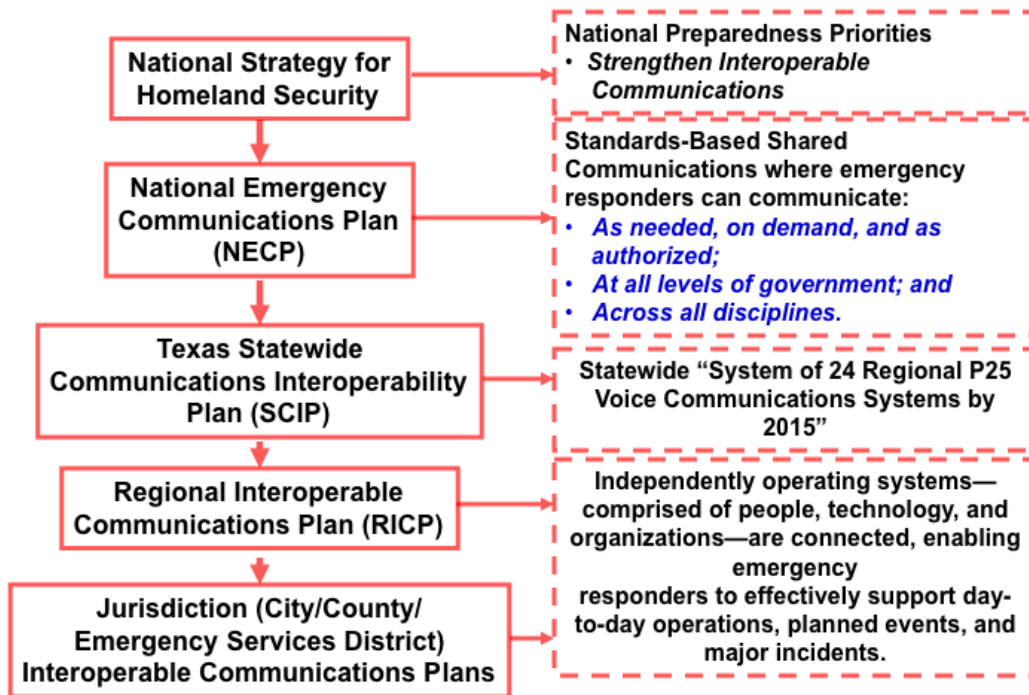


Figure 3. Aligning local, regional, state, and national strategies for communications interoperability

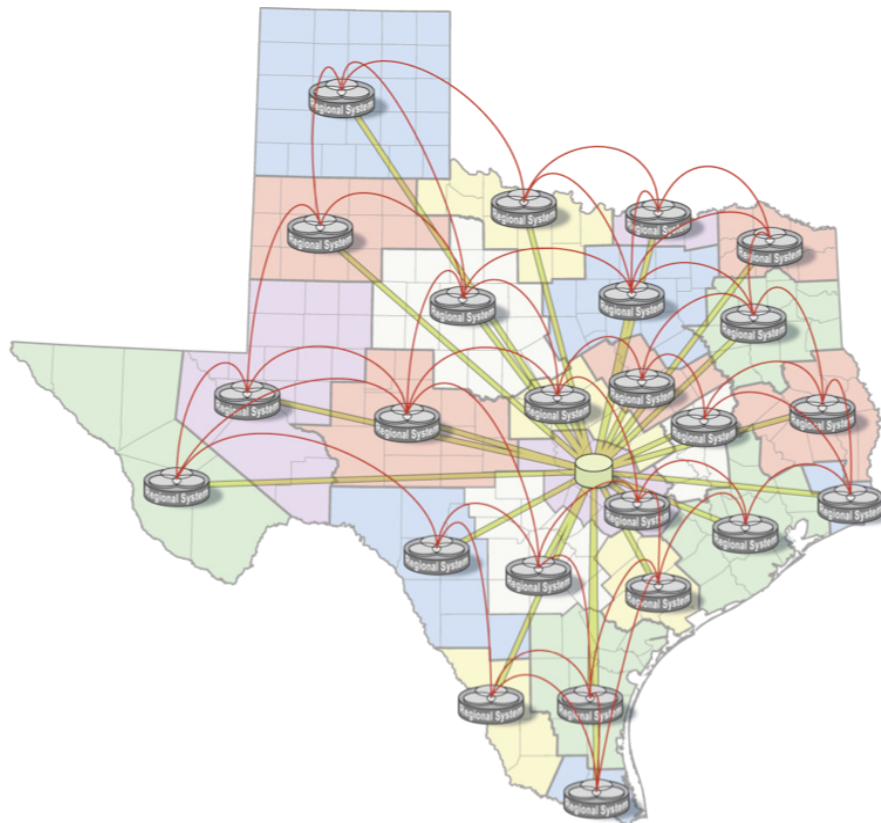


Figure 4. Desired Texas "system of systems" with DPS hub in Austin

Defined by the U.S. DHS SAFECOM program, a system of systems exists when a group of independently operating systems – comprised of people, technology, and organizations – are connected, enabling emergency responders to effectively support day-to-day operations, planned events, or major disasters. The Texas system of systems will enable agencies and regions to meet their specific needs while connecting to a broader network of resources. Figure 4 provides a conceptual illustration of how regional systems will operate independently, but will also have the ability to communicate with other regions and agencies, as needed, through a state-hosted gateway solution and other interoperable solutions.

Governance

The TxRC, which represents Texas' 5,300 public safety and emergency response agencies, was formed in 2006 to begin improving the disjointed approaches to emergency response communications across Texas. Before the TxRC was formed, there was no statewide user group specifically constituted to examine communications problems across Texas and identify cohesive solutions to address them. While the TxRC made great strides in developing the Texas Statewide Communications Interoperability Plan (SCIP)⁶, located in Appendix E, and forming partnerships between agencies that previously had little or no working relationships, the state was still lacking a single oversight body at the state agency level. In May 2010, DPS agreed to assume responsibility as the oversight state agency to:

- Implement the state public safety wireless communications strategy
- Coordinate with the 24 COGs to develop and implement their regional communications strategies in support of the statewide goal
- Ensure that grant funds are distributed and spent effectively in alignment with that strategy [in collaboration with the Federally designated DPS State Administrative Agency (DPS-SAA), which is under the DPS Chief of Staff's Office]

Principles

The principles by which DPS is working with the COGs to create this system of systems include:

- **Operability for all** – While interoperability across the state is the public safety wireless communications goal for Texas, many areas still need assistance to achieve a basic ability to communicate within their own agency (operability) before they can communicate with other agencies (interoperability). As these agencies purchase communications equipment to become operable, they are encouraged to ensure that the equipment purchased will ensure interoperability with relevant disciplines and jurisdictions.
- **Standards-based systems** – The nationally recognized Project 25⁷ (P25) suite of standards has been adopted by the emergency response community and the federal government. Most federal communications grant programs encourage that communications systems purchased with grant funds are P25 compliant. The DPS-SAA requires that radio equipment purchased with grant funds be P25-compliant.⁸

⁶ The Texas SCIP can be found at http://txrc.region49.org/SCIP_documents.html.

⁷ <http://www.project25.org/>

⁸ In special circumstances, the DPS-SAA permits "compelling reason exceptions" to the P25 requirement on a case-by-case basis.

The Texas SCIP sets forth the vision that all emergency response communications systems in Texas be P25 compliant by the end of 2015.

- **Driven by end-user needs** – The regional systems and designs are driven by user-identified requirements. DPS is providing guidance and technical assistance to local and regional jurisdictions to assist them in achieving their regional communication goals. DPS is driven by the aforementioned vision statement to move Texas toward P25 standards-based shared systems, while remaining vendor neutral. The role of DPS is to ensure that these regional approaches and individual agency systems do not result in stove-piped communications.
- **Leverage existing resources** – Local, state, federal and private sector agencies continue to work with emergency response agencies across the state to leverage existing communications equipment, systems, and other resources to build the statewide system of systems. This approach has, and will continue to, save time and funding and can minimize recurring maintenance costs.
- **Coordinated approach** – By coordinating with one another, agencies from different disciplines and jurisdictions at the local, tribal, regional, state, and federal levels are able to leverage existing resources, coordinate purchases, and share infrastructure.

Funding Gap

An investment in infrastructure and communications equipment is necessary to achieve the aforementioned communications interoperability vision, and to enable basic communications operability in some areas of Texas. To attain this, Texas emergency response agencies need \$84 million per year in state funds over five years, in addition to federal and local funds. The total funding requirement is projected at \$813-million, of which \$393-million is coming by way of anticipated federal grants through 2015 for COG interoperable communications projects. \$420-million is needed from state funds (\$420-million divided by five years = \$84-million per year in state funds – see “Operation Texas Talks” project explanation, Appendix D).

Total Projected Interoperability Funding Need	\$813 M⁹
Estimated from federal government through 2015	\$393 M
Amount needed from the state	\$420 M (\$84 M/year for five years)

Aging infrastructure must be replaced. Some towers are more than 35 years old and have deteriorated, yet are still in use. The \$813 million would provide a base level of operability and interoperability across that meets P25 standards. Examples of equipment that are needed to fill this gap include: gateways, repeaters, microwave technology, radio consoles, mobile and portable radios, and mobile communication command vehicles. For a description of these technologies, please see the glossary in Appendix A.

⁹ The \$813-million requirement for a basic level of interoperable communications infrastructure statewide was a finding of the Texas Radio Coalition Funding Working Group in the fall of 2008.

Funding Spent Toward the Vision & Current Level of Statewide Communications Interoperability

The following is a summary of the federal grant funds (used by local jurisdictions for interoperable communications projects) that have been administered by the DPS-SAA Office since 2006⁹. Additional details on these expenditures can be found in Appendix B. The 24 Texas COGs are presently refining their Regional Interoperable Communications Plans (RICPs) to provide additional detail concerning emergency response communication requirements, systems designs, and financial needs. The revised RICPs are to be submitted to DPS by June 30, 2011 and will be incorporated into the DPS report to the State Legislature in September 2011. (See attached DPS PowerPoint Presentation made to the 4th Annual Texas Interoperable Communications Statewide Strategic Planning Session, August 24, 2010 - Appendix E.)

Since 2006, Texas jurisdictions have spent \$80,864,903.80 in DPS-SAA Office-distributed federal funding for interoperable communications technology purchases, including infrastructure and equipment such as base stations/repeaters, mobile and portable radios, towers and antennas, and gateways and bridging equipment. This amount does not include expenditures on the development of SOPs, training and exercises conducted, or funding for strategy and governance development, which are also important elements of emergency response communications. Local jurisdictions can choose how to spend awarded federal grant funding, meaning exact amounts spent on communications can only be identified after the funds have been expended.

The charts that follow highlight expenditures by COG per year, with a cumulative total of all four years.

There are five color-coded levels of communications interoperability (Level One-least interoperable to Level Five-most interoperable). The five-step Texas Statewide Communications Interoperability Maturity Model follows, along with a map showing Texas 254 counties which have been color-coded to the level of interoperability they have achieved as of August 20, 2010. The average level of interoperability statewide was determined to be 3.2 on the Five-Level scale.

Conclusion: When Texas will reach Level Five – Full Interoperability (P25 Standards-Based, Shared Systems Capability)

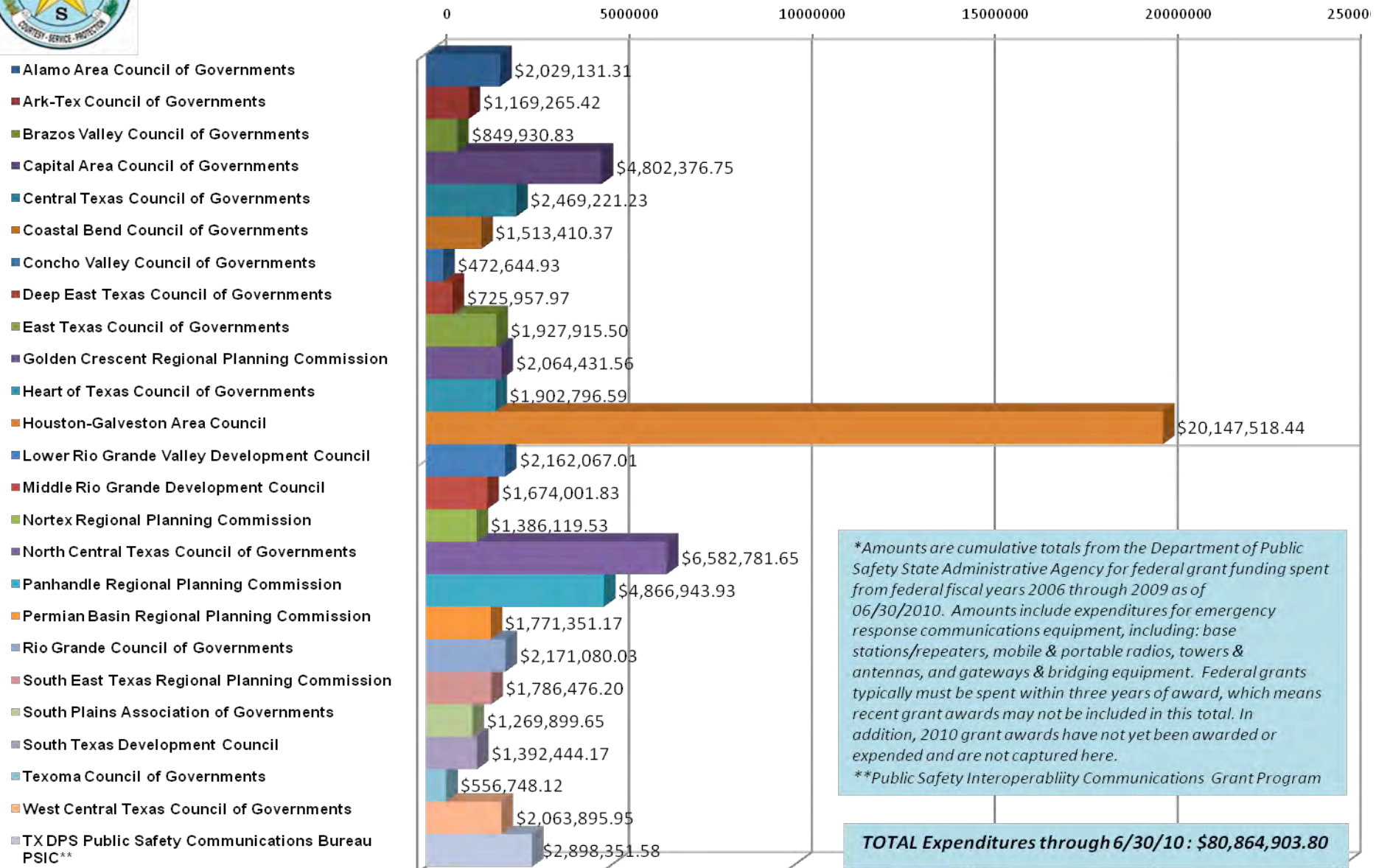
Achieving the VISION of the Texas Statewide Communications Interoperability Plan by the end of 2015 is entirely dependent on receipt of needed funding for infrastructure - \$393-million from the federal government through grants (which for the most part is being received on schedule), and \$420-million needed from the Texas Legislature. It will mostly be up to local jurisdictions to provide funding for mobile and portable radios.

⁹ The DPS-SAA office manages 21 grants that have been used for interoperable (and operable) communications. Additional federal funds directly flow to local jurisdictions from the federal government or through the Governor's Criminal Justice Division. Local jurisdictions also budget local funds to support interoperable and operable communications. The figures captured in this report only reflect federal funds that have flowed through the DPS-SAA office to local jurisdictions.

Expenditures by COG on Interoperable Communications Using DPS Administered Federal Grant Funds for Grant Award Years 2006 through 2009



Expenditures* by COG on Interoperable Communications Using DPS Administered Federal Grant Funds for Grant Award Years 2006 through 2009



Council of Government	2006	2007	2008	2009	TOTALS
Alamo Area Council of Governments	\$ 958,583.78	\$ 628,527.19	\$ 329,655.34	\$ 112,365.00	\$ 2,029,131.31
Ark-Tex Council of Governments	\$ 72,450.39	\$ 805,956.63	\$ 258,692.36	\$ 32,166.04	\$ 1,169,265.42
Brazos Valley Council of Governments	\$ 335,834.78	\$ 424,939.42	\$ 84,280.95	\$ 4,875.68	\$ 849,930.83
Capital Area Council of Governments	\$ 633,825.30	\$ 3,634,300.10	\$ 447,923.35	\$ 86,328.00	\$ 4,802,376.75
Central Texas Council of Governments	\$ 629,709.13	\$ 696,997.40	\$ 1,132,514.70	\$ 10,000.00	\$ 2,469,221.23
Coastal Bend Council of Governments	\$ 445,518.52	\$ 654,618.29	\$ 351,973.95	\$ 61,299.61	\$ 1,513,410.37
Concho Valley Council of Governments	\$ 115,735.83	\$ 355,649.10	\$ 1,260.00		\$ 472,644.93
Deep East Texas Council of Governments	\$ 69,097.47	\$ 249,532.50	\$ 238,646.82	\$ 168,681.18	\$ 725,957.97
East Texas Council of Governments	\$ 314,944.05	\$ 587,115.58	\$ 839,310.71	\$ 186,545.16	\$ 1,927,915.50
Golden Crescent Regional Planning Commission	\$ 413,807.13	\$ 767,369.74	\$ 853,523.85	\$ 29,730.84	\$ 2,064,431.56
Heart of Texas Council of Governments	\$ 58,110.94	\$ 1,759,250.55	\$ 85,435.10		\$ 1,902,796.59
Houston-Galveston Area Council	\$ 5,376,217.51	\$ 13,272,618.84	\$ 992,414.54	\$ 506,267.55	\$ 20,147,518.44
Lower Rio Grande Valley Development Council	\$ 774,318.61	\$ 863,804.33	\$ 485,141.67	\$ 38,802.40	\$ 2,162,067.01
Middle Rio Grande Development Council	\$ 45,802.11	\$ 743,110.90	\$ 788,666.78	\$ 96,422.04	\$ 1,674,001.83
Nortex Regional Planning Commission	\$ 261,298.45	\$ 426,109.97	\$ 426,498.70	\$ 272,212.41	\$ 1,386,119.53
North Central Texas Council of Governments	\$ 1,345,362.18	\$ 4,626,609.16	\$ 524,260.56	\$ 86,549.75	\$ 6,582,781.65
Panhandle Regional Planning Commission	\$ 677,223.27	\$ 2,960,749.28	\$ 1,035,366.63	\$ 193,604.75	\$ 4,866,943.93
Permian Basin Regional Planning Commission	\$ 818,177.41	\$ 953,173.76			\$ 1,771,351.17
Rio Grande Council of Governments	\$ 199,238.81	\$ 1,788,084.82	\$ 183,756.40		\$ 2,171,080.03
South East Texas Regional Planning Commission	\$ 100,967.32	\$ 994,423.10	\$ 536,892.68	\$ 154,193.10	\$ 1,786,476.20
South Plains Association of Governments	\$ 296,797.26	\$ 973,102.39			\$ 1,269,899.65
South Texas Development Council	\$ 366,094.61	\$ 963,591.96	\$ 62,757.60		\$ 1,392,444.17
Texoma Council of Governments	\$ 126,082.39	\$ 254,816.65	\$ 175,849.08		\$ 556,748.12
West Central Texas Council of Governments	\$ 113,686.61	\$ 1,257,866.69	\$ 671,793.13	\$ 20,549.52	\$ 2,063,895.95
TX DPS Public Safety Communications Bureau PSIC**			\$2,898,351.58		\$ 2,898,351.58
SUB-TOTALS:	\$ 14,548,883.86	\$ 40,642,318.35	\$ 13,404,966.48	\$ 2,060,593.03	\$ 70,656,761.72
PSIC HGAC One		\$ 2,242,178.60			
PSIC HGAC Two		\$ 1,462,458.91			
PSIC RGCOG		\$ 2,638,531.81			
PSIC SAA Region		\$ 3,864,972.76			
PSIC ADDITIONALS SUB-TOTAL:		\$ 10,208,142.08			
GRAND TOTAL EXPENDITURES THROUGH 6/30/10:					\$ 80,864,903.80

The Current Status of Voice Communications Interoperability in Texas (*As of COG County Survey 8/20/10*)

The Texas Statewide Communications Interoperability Maturity Model (TSCIMM), which appears below, is based on the SAFECOM Continuum¹⁰. The TSCIMM outlines the evolution from the lowest level to the highest level of communications interoperability. The following map of Texas highlights the current status of each county regarding their level of interoperability in the “Technology” lane of the TSCIMM. The status is indicated by the individual colors associated with the five levels of interoperability in the TSCIMM.

Level One = the lowest level of interoperability, which is accomplished by physically exchanging radios to communicate with other agencies (swap radios)

Level Two = minimal interoperability, which is accomplished with the use of gateway devices (electronically interconnecting two or more disparate radio system through gateways)

Level Three = mid-range interoperability through the use of shared channels

Level Four = improved interoperability through the use of shared proprietary system(s)

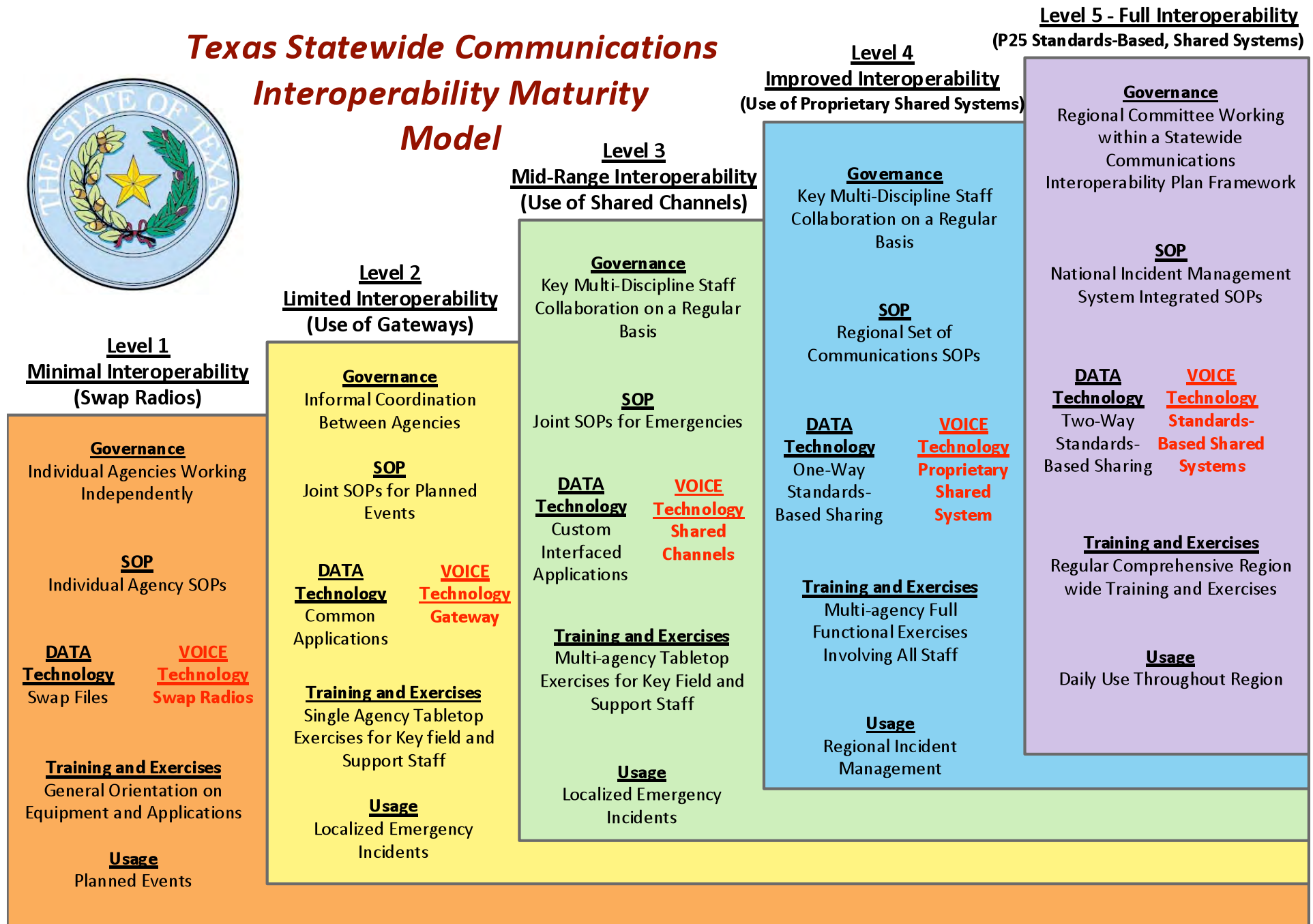
Level Five = the optimal level of full interoperability through the use of P25 standards-based shared system(s) to communicate with other agencies

The color-coded map reflects a snapshot of each county’s status of voice communications interoperability. This information was obtained directly from the 24 COGs through a survey submitted to DPS as of August 20, 2010. As the map indicates, for the most part, Texas has achieved Level Three (mid-range) wireless communications interoperability. The three tables following the map list a) the interoperability level of each county, sorted at the COG level; b) the interoperability level of each county, sorted by level; and c) the interoperability level of each county, sorted by county name alphabetically.

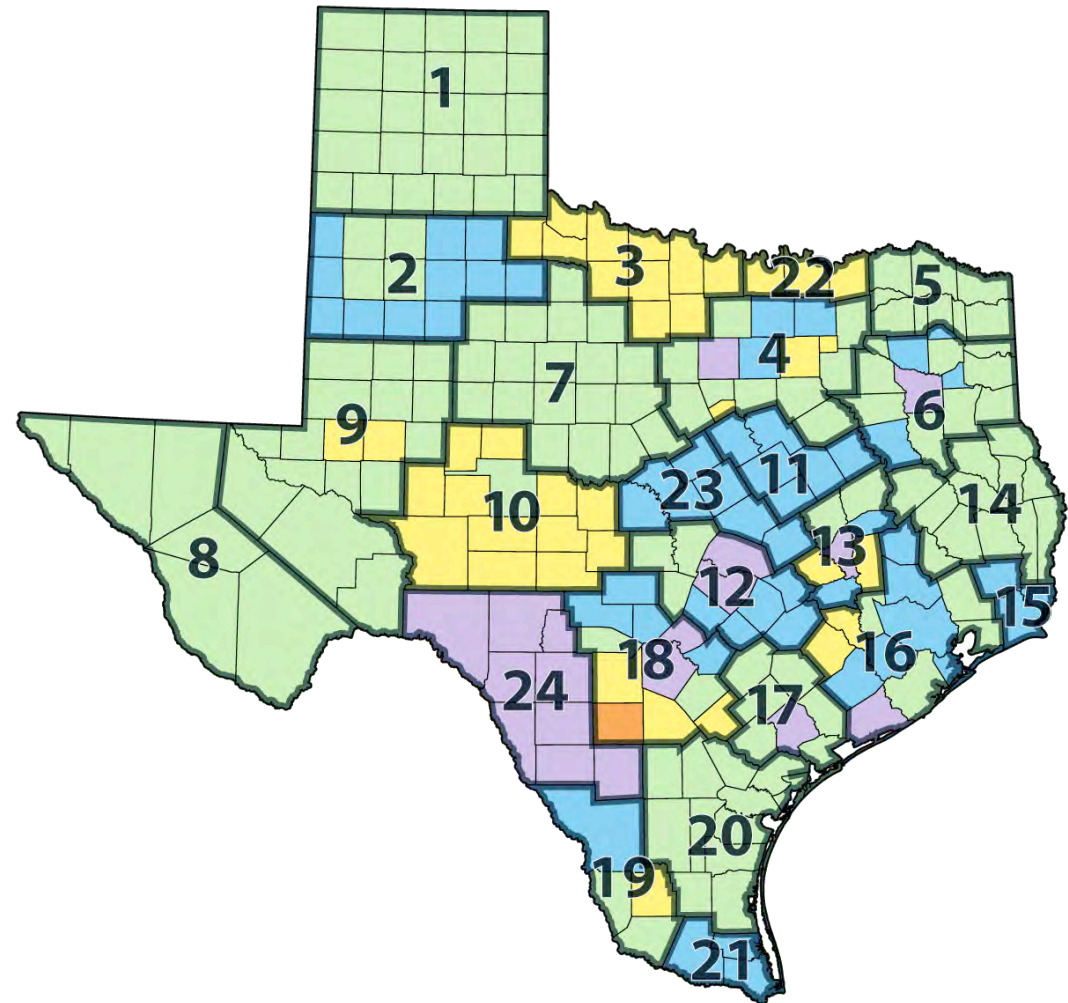
¹⁰ For additional information about the U.S. Department of Homeland Security’s Interoperability Continuum developed by the SAFECOM program, see <http://www.safecomprogram.gov/SAFECOM/tools/continuum/default.htm>



Texas Statewide Communications Interoperability Maturity Model



COG Region Name	#
Alamo Area Council of Governments	18
Ark-Tex Council of Governments	5
Brazos Valley Council of Governments	13
Capital Area Council of Governments	12
Central Texas Council of Governments	23
Coastal Bend Council of Governments	20
Concho Valley Council of Governments	10
Deep East Texas Council of Governments	14
East Texas Council of Governments	6
Golden Crescent Regional Planning Commission	17
Heart of Texas Council of Governments	11
Houston-Galveston Area Council	16
Lower Rio Grande Valley Development Council	21
Middle Rio Grande Development Council	24
Nortex Regional Planning Commission	3
North Central Texas Council of Governments	4
Panhandle Regional Planning Commission	1
Permian Basin Regional Planning Commission	9
Rio Grande Council of Governments	8
South East Texas Regional Planning Commission	15
South Plains Association of Governments	2
South Texas Development Council	19
Texoma Council of Governments	22
West Central Texas Council of Government	7



Texas Statewide Communications

Interoperability Maturity Model Color Codes:

- **Level One** (least interoperable) 1 County
 - **Level Two** 39 Counties
 - **Level Three** 141 Counties
 - **Level Four** 55 Counties
 - **Level Five** (most interoperable) 18 Counties
- TOTAL: 254 Counties

Average Statewide Interoperability: Level 3.2

Communications Interoperability Status by COG and County (As of 8/20/10)

Alamo Area COG		Coastal Bend COG		Panola	3
Bexar	5	Aransas	3	Rains	3
Comal	5	Bee	3	Rusk	3
Gillespie	4	Brooks	3	Upshur	3
Guadalupe	4	Duval	3	Van Zandt	3
Kendall	4	Jim Wells	3	Golden Crescent Regional Planning Commission	
Kerr	4	Kenedy	3	Victoria	5
Bandera	3	Kleberg	3	Calhoun	3
Wilson	3	Live Oak	3	Dewitt	3
Atascosa	2	McMullen	3	Goliad	3
Karnes	2	Nueces	3	Gonzales	3
Medina	2	Refugio	3	Jackson	3
Frio	1	San Patricio	3	Lavaca	3
Ark-Tex COG		Concho Valley COG		Heart of Texas COG	
Bowie	3	Tom Green	3	Bosque	4
Cass	3	Coke	2	Falls	4
Delta	3	Concho	2	Freestone	4
Franklin	3	Crockett	2	Hill	4
Hopkins	3	Irion	2	Limestone	4
Lamar	3	Kimble	2	McLennan	4
Morris	3	Mason	2	Houston - Galveston Area COG	
Red River	3	McCulloch	2	Matagorda	5
Titus	3	Menard	2	Fort Bend	4
Brazos Valley COG		Reagan	2	Galveston	4
Brazos	5	Schleicher	2	Harris	4
Madison	4	Sterling	2	Montgomery	4
Washington	4	Sutton	2	Walker	4
Leon	3	Deep East Texas COG		Wharton	4
Robertson	3	Angelina	3	Brazoria	3
Burleson	2	Houston	3	Chambers	3
Grimes	2	Jasper	3	Liberty	3
Capital Area COG		Nacogdoches	3	Waller	3
Travis	5	Newton	3	Austin	2
Williamson	5	Polk	3	Colorado	2
Bastrop	4	Sabine	3	Lower Rio Grande Valley Development Council	
Caldwell	4	San Augustine	3	Cameron	4
Fayette	4	San Jacinto	3	Hidalgo	4
Hays	4	Shelby	3	Willacy	4
Lee	4	Trinity	3	Middle Rio Grande Development Council	
Blanco	3	Tyler	3	Dimmit	5
Burnet	3	East Texas COG		Edwards	5
Llano	3	Smith	5	Kinney	5
Central Texas COG		Anderson	4	LaSalle	5
Bell	4	Camp	4	Maverick	5
Coryell	4	Gregg	4	Real	5
Hamilton	4	Wood	4	Uvalde	5
Lampasas	4	Cherokee	3	Val Verde	5
Milam	4	Harrison	3	Zavala	5
Mills	4	Henderson	3		
San Saba	4	Marion	3		

Communications Interoperability Status by COG and County (As of 8/20/10)

Nortex Regional Planning Commission		Hutchinson	3	Crosby	4
Archer	2	Lipscomb	3	Dickens	4
Baylor	2	Moore	3	Floyd	4
Clay	2	Ochiltree	3	Garza	4
Cottle	2	Oldham	3	King	4
Foard	2	Parmer	3	Lynn	4
Hardeman	2	Potter	3	Motley	4
Jack	2	Randall	3	Terry	4
Montague	2	Roberts	3	Yoakum	4
Wichita	2	Sherman	3	Hale	3
Wilbarger	2	Swisher	3	Hockley	3
Young	2	Wheeler	3	Lamb	3
North Central Texas COG		Permian Basin Regional Planning Commission		Lubbock	3
Parker	5	Andrews	3	South Texas Development Council	
Collin	4	Borden	3	Webb	4
Denton	4	Crane	3	Starr	3
Tarrant	4	Dawson	3	Zapata	3
Ellis	3	Gaines	3	Jim Hogg	2
Erath	3	Glasscock	3	Texoma Council of Governments	
Hood	3	Howard	3	Cooke	2
Hunt	3	Loving	3	Fannin	2
Johnson	3	Martin	3	Grayson	2
Kaufman	3	Pecos	3	West Central Texas COG	
Navarro	3	Reeves	3	Brown	3
Palo Pinto	3	Terrell	3	Callahan	3
Wise	3	Upton	3	Coleman	3
Dallas	2	Ward	3	Comanche	3
Rockwall	2	Winkler	3	Eastland	3
Somervell	2	Ector	2	Fisher	3
Panhandle Regional Planning Commission		Midland	2	Haskell	3
Armstrong	3	Rio Grande Council of Governments		Jones	3
Briscoe	3	Brewster	3	Kent	3
Carson	3	Culberson	3	Knox	3
Castro	3	El Paso	3	Mitchell	3
Childress	3	Hudspeth	3	Nolan	3
Collingsworth	3	Jeff Davis	3	Runnels	3
Dallam	3	Presidio	3	Scurry	3
Deaf Smith	3	South East Texas Regional Planning Commission		Shackelford	3
Donley	3	Hardin	4	Stephens	3
Gray	3	Jefferson	4	Stonewall	3
Hall	3	Orange	4	Taylor	3
Hansford	3	South Plains Association of Governments		Throckmorton	3
Hartley	3	Bailey	4		
Hemphill	3	Cochran	4		

Communications Interoperability Status by Level (As of 8/20/10)

County	Located in this COG	Level
Bexar	Alamo Area Council of Governments	5
Brazos County	Brazos Valley Council of Governments	5
Comal	Alamo Area Council of Governments	5
Dimmit	Middle Rio Grande Development Council	5
Edwards	Middle Rio Grande Development Council	5
Kinney	Middle Rio Grande Development Council	5
LaSalle	Middle Rio Grande Development Council	5
Matagorda	Houston-Galveston Area Council	5
Maverick	Middle Rio Grande Development Council	5
Parker	North Central Texas Council of Governments	5
Real	Middle Rio Grande Development Council	5
Smith	East Texas Council of Governments	5
Travis	Capital Area Council of Governments	5
Uvalde	Middle Rio Grande Development Council	5
Val Verde	Middle Rio Grande Development Council	5
Victoria	Golden Crescent Regional Planning Commission	5
Williamson	Capital Area Council of Governments	5
Zavala	Middle Rio Grande Development Council	5
Anderson	East Texas Council of Governments	4
Bailey	South Plains Association of Governments	4
Bastrop	Capital Area Council of Governments	4
Bell	Central Texas Council of Governments	4
Bosque	Heart of Texas Council of Governments	4
Caldwell	Capital Area Council of Governments	4
Cameron	Lower Rio Grande Valley Development Council	4
Camp	East Texas Council of Governments	4
Cochran	South Plains Association of Governments	4
Collin	North Central Texas Council of Governments	4
Coryell	Central Texas Council of Governments	4
Crosby	South Plains Association of Governments	4
Denton	North Central Texas Council of Governments	4
Dickens	South Plains Association of Governments	4
Falls	Heart of Texas Council of Governments	4
Fayette	Capital Area Council of Governments	4
Floyd	South Plains Association of Governments	4
Fort Bend	Houston-Galveston Area Council	4
Freestone	Heart of Texas Council of Governments	4
Galveston	Houston-Galveston Area Council	4
Garza	South Plains Association of Governments	4
Gillespie	Alamo Area Council of Governments	4
Gregg	East Texas Council of Governments	4

County	Located in this COG	Level
Guadalupe	Alamo Area Council of Governments	4
Hamilton	Central Texas Council of Governments	4
Hardin	South East Texas Regional Planning Commission	4
Harris	Houston-Galveston Area Council	4
Hays	Capital Area Council of Governments	4
Hidalgo	Lower Rio Grande Valley Development Council	4
Hill	Heart of Texas Council of Governments	4
Jefferson	South East Texas Regional Planning Commission	4
Kendall	Alamo Area Council of Governments	4
Kerr	Alamo Area Council of Governments	4
King	South Plains Association of Governments	4
Lampasas	Central Texas Council of Governments	4
Lee	Capital Area Council of Governments	4
Limestone	Heart of Texas Council of Governments	4
Lynn	South Plains Association of Governments	4
Madison	Brazos Valley Council of Governments	4
McLennan	Heart of Texas Council of Governments	4
Milam	Central Texas Council of Governments	4
Mills	Central Texas Council of Governments	4
Montgomery	Houston-Galveston Area Council	4
Motley	South Plains Association of Governments	4
Orange	South East Texas Regional Planning Commission	4
San Saba	Central Texas Council of Governments	4
Tarrant	North Central Texas Council of Governments	4
Terry	South Plains Association of Governments	4
Walker	Houston-Galveston Area Council	4
Washington	Brazos Valley Council of Governments	4
Webb	South Texas Development Council	4
Wharton	Houston-Galveston Area Council	4
Willacy	Lower Rio Grande Valley Development Council	4
Wood	East Texas Council of Governments	4
Yoakum	South Plains Association of Governments	4
Andrews	Permian Basin Regional Planning Commission	3
Angelina	Deep East Texas Council of Governments	3
Armstrong	Panhandle Regional Planning Commission	3
Aransas	Coastal Bend Council of Governments	3
Bandera	Alamo Area Council of Governments	3
Bee	Coastal Bend Council of Governments	3
Blanco	Capital Area Council of Governments	3
Borden	Permian Basin Regional Planning Commission	3

County	Located in this COG	Level
Bowie	Ark-Tex Council of Governments	3
Brazoria	Houston-Galveston Area Council	3
Brewster	Rio Grande Council of Governments	3
Briscoe	Panhandle Regional Planning Commission	3
Brooks	Coastal Bend Council of Governments	3
Brown	West Central Texas Council of Governments	3
Burnet	Capital Area Council of Governments	3
Calhoun	Golden Crescent Regional Planning Commission	3
Callahan	West Central Texas Council of Governments	3
Carson	Panhandle Regional Planning Commission	3
Cass	Ark-Tex Council of Governments	3
Castro	Panhandle Regional Planning Commission	3
Chambers	Houston-Galveston Area Council	3
Cherokee	East Texas Council of Governments	3
Childress	Panhandle Regional Planning Commission	3
Coleman	West Central Texas Council of Governments	3
Collingsworth	Panhandle Regional Planning Commission	3
Comanche	West Central Texas Council of Governments	3
Crane	Permian Basin Regional Planning Commission	3
Culberson	Rio Grande Council of Governments	3
Dallam	Panhandle Regional Planning Commission	3
Dawson	Permian Basin Regional Planning Commission	3
Deaf Smith	Panhandle Regional Planning Commission	3
Delta	Ark-Tex Council of Governments	3
Dewitt	Golden Crescent Regional Planning Commission	3
Donley	Panhandle Regional Planning Commission	3
Duval	Coastal Bend Council of Governments	3
Eastland	West Central Texas Council of Governments	3
El Paso	Rio Grande Council of Governments	3
Ellis	North Central Texas Council of Governments	3
Erath	North Central Texas Council of Governments	3
Fisher	West Central Texas Council of Governments	3
Franklin	Ark-Tex Council of Governments	3
Gaines	Permian Basin Regional Planning Commission	3
Glasscock	Permian Basin Regional Planning Commission	3
Goliad	Golden Crescent Regional Planning Commission	3
Gonzales	Golden Crescent Regional Planning Commission	3
Gray	Panhandle Regional Planning Commission	3
Hale	South Plains Association of Governments	3
Hall	Panhandle Regional Planning Commission	3

County	Located in this COG	Level
Hansford	Panhandle Regional Planning Commission	3
Harrison	East Texas Council of Governments	3
Hartley	Panhandle Regional Planning Commission	3
Haskell	West Central Texas Council of Governments	3
Hemphill	Panhandle Regional Planning Commission	3
Henderson	East Texas Council of Governments	3
Hockley	South Plains Association of Governments	3
Hood	North Central Texas Council of Governments	3
Hopkins	Ark-Tex Council of Governments	3
Houston	Deep East Texas Council of Governments	3
Howard	Permian Basin Regional Planning Commission	3
Hudspeth	Rio Grande Council of Governments	3
Hunt	North Central Texas Council of Governments	3
Hutchinson	Panhandle Regional Planning Commission	3
Jackson	Golden Crescent Regional Planning Commission	3
Jasper	Deep East Texas Council of Governments	3
Jeff Davis	Rio Grande Council of Governments	3
Jim Wells	Coastal Bend Council of Governments	3
Johnson	North Central Texas Council of Governments	3
Jones	West Central Texas Council of Governments	3
Kaufman	North Central Texas Council of Governments	3
Kenedy	Coastal Bend Council of Governments	3
Kent	West Central Texas Council of Governments	3
Kleberg	Coastal Bend Council of Governments	3
Knox	West Central Texas Council of Governments	3
Lamar	Ark-Tex Council of Governments	3
Lamb	South Plains Association of Governments	3
Lavaca	Golden Crescent Regional Planning Commission	3
Leon	Brazos Valley Council of Governments	3
Liberty	Houston-Galveston Area Council	3
Lipscomb	Panhandle Regional Planning Commission	3
Live Oak	Coastal Bend Council of Governments	3
Llano	Capital Area Council of Governments	3
Loving	Permian Basin Regional Planning Commission	3
Lubbock	South Plains Association of Governments	3
Marion	East Texas Council of Governments	3
Martin	Permian Basin Regional Planning Commission	3
McMullen	Coastal Bend Council of Governments	3
Mitchell	West Central Texas Council of Governments	3
Moore	Panhandle Regional Planning Commission	3

County	Located in this COG	Level
Morris	Ark-Tex Council of Governments	3
Nacogdoches	Deep East Texas Council of Governments	3
Navarro	North Central Texas Council of Governments	3
Newton	Deep East Texas Council of Governments	3
Nolan	West Central Texas Council of Governments	3
Nueces	Coastal Bend Council of Governments	3
Ochiltree	Panhandle Regional Planning Commission	3
Oldham	Panhandle Regional Planning Commission	3
Palo Pinto	North Central Texas Council of Governments	3
Panola	East Texas Council of Governments	3
Parmer	Panhandle Regional Planning Commission	3
Pecos	Permian Basin Regional Planning Commission	3
Polk	Deep East Texas Council of Governments	3
Potter	Panhandle Regional Planning Commission	3
Presidio	Rio Grande Council of Governments	3
Rains	East Texas Council of Governments	3
Randall	Panhandle Regional Planning Commission	3
Red River	Ark-Tex Council of Governments	3
Reeves	Permian Basin Regional Planning Commission	3
Refugio	Coastal Bend Council of Governments	3
Roberts	Panhandle Regional Planning Commission	3
Robertson	Brazos Valley Council of Governments	3
Runnels	West Central Texas Council of Governments	3
Rusk	East Texas Council of Governments	3
Sabine	Deep East Texas Council of Governments	3
San Augustine	Deep East Texas Council of Governments	3
San Jacinto	Deep East Texas Council of Governments	3
San Patricio	Coastal Bend Council of Governments	3
Scurry	West Central Texas Council of Governments	3
Shackelford	West Central Texas Council of Governments	3
Shelby	Deep East Texas Council of Governments	3
Sherman	Panhandle Regional Planning Commission	3
Starr	South Texas Development Council	3
Stephens	West Central Texas Council of Governments	3
Stonewall	West Central Texas Council of Governments	3
Swisher	Panhandle Regional Planning Commission	3
Taylor	West Central Texas Council of Governments	3
Terrell	Permian Basin Regional Planning Commission	3
Throckmorton	West Central Texas Council of Governments	3
Titus	Ark-Tex Council of Governments	3

County	Located in this COG	Level
Tom Green	Concho Valley Council of Governments	3
Trinity	Deep East Texas Council of Governments	3
Tyler	Deep East Texas Council of Governments	3
Upshur	East Texas Council of Governments	3
Upton	Permian Basin Regional Planning Commission	3
Van Zandt	East Texas Council of Governments	3
Waller	Houston-Galveston Area Council	3
Ward	Permian Basin Regional Planning Commission	3
Wheeler	Panhandle Regional Planning Commission	3
Wilson	Alamo Area Council of Governments	3
Winkler	Permian Basin Regional Planning Commission	3
Wise	North Central Texas Council of Governments	3
Zapata	South Texas Development Council	3
Archer	Nortex Regional Planning Commission	2
Atascosa	Alamo Area Council of Governments	2
Austin	Houston-Galveston Area Council	2
Baylor	Nortex Regional Planning Commission	2
Burleson	Brazos Valley Council of Governments	2
Clay	Nortex Regional Planning Commission	2
Coke	Concho Valley Council of Governments	2
Colorado	Houston-Galveston Area Council	2
Concho	Concho Valley Council of Governments	2
Cooke	Texoma Council of Governments	2
Cottle	Nortex Regional Planning Commission	2
Crockett	Concho Valley Council of Governments	2
Dallas	North Central Texas Council of Governments	2
Ector	Permian Basin Regional Planning Commission	2
Fannin	Texoma Council of Governments	2
Foard	Nortex Regional Planning Commission	2
Grayson	Texoma Council of Governments	2
Grimes	Brazos Valley Council of Governments	2
Hardeman	Nortex Regional Planning Commission	2
Irion	Concho Valley Council of Governments	2
Jack	Nortex Regional Planning Commission	2
Jim Hogg	South Texas Development Council	2
Karnes	Alamo Area Council of Governments	2
Kimble	Concho Valley Council of Governments	2
Mason	Concho Valley Council of Governments	2
McCulloch	Concho Valley Council of Governments	2
Medina	Alamo Area Council of Governments	2

County	Located in this COG	Level
Menard	Concho Valley Council of Governments	2
Midland	Permian Basin Regional Planning Commission	2
Montague	Nortex Regional Planning Commission	2
Reagan	Concho Valley Council of Governments	2
Rockwall	North Central Texas Council of Governments	2
Schleicher	Concho Valley Council of Governments	2
Somervell	North Central Texas Council of Governments	2
Sterling	Concho Valley Council of Governments	2
Sutton	Concho Valley Council of Governments	2
Wichita	Nortex Regional Planning Commission	2
Wilbarger	Nortex Regional Planning Commission	2
Young	Nortex Regional Planning Commission	2
Frio	Alamo Area Council of Governments	1

Communications Interoperability Status by County

(As of 8/20/10)

Anderson	4	Collingsworth	3	Glasscock	3	Kendall	4	Motley	4	Sterling	2
Andrews	3	Colorado	2	Goliad	3	Kenedy	3	Nacogdoches	3	Stonewall	3
Angelina	3	Comal	5	Gonzales	3	Kent	3	Navarro	3	Sutton	2
Archer	2	Comanche	3	Gray	3	Kerr	4	Newton	3	Swisher	3
Armstrong	3	Concho	2	Grayson	2	Kimble	2	Nolan	3	Tarrant	4
Aransas	3	Cooke	2	Gregg	4	King	4	Nueces	3	Taylor	3
Atascosa	2	Coryell	4	Grimes	2	Kinney	5	Ochiltree	3	Terrell	3
Austin	2	Cottle	2	Guadalupe	4	Kleberg	3	Oldham	3	Terry	4
Bailey	4	Crane	3	Hale	3	Knox	3	Orange	4	Throckmorton	3
Bandera	3	Crockett	2	Hall	3	Lamar	3	Palo Pinto	3	Titus	3
Bastrop	4	Crosby	4	Hamilton	4	Lamb	3	Panola	3	Tom Green	3
Baylor	2	Culberson	3	Hansford	3	Lampasas	4	Parker	5	Travis	5
Bee	3	Dallam	3	Hardeman	2	LaSalle	5	Parmer	3	Trinity	3
Bell	4	Dallas	2	Hardin	4	Lavaca	3	Pecos	3	Tyler	3
Bexar	5	Dawson	3	Harris	4	Lee	4	Polk	3	Upshur	3
Blanco	3	Deaf Smith	3	Harrison	3	Leon	3	Potter	3	Upton	3
Borden	3	Delta	3	Hartley	3	Liberty	3	Presidio	3	Uvalde	5
Bosque	4	Denton	4	Haskell	3	Limestone	4	Rains	3	Val Verde	5
Bowie	3	Dewitt	3	Hays	4	Lipscomb	3	Randall	3	Van Zandt	3
Brazoria	3	Dickens	4	Hemphill	3	Live Oak	3	Reagan	2	Victoria	5
Brazos	5	Dimmit	5	Henderson	3	Llano	3	Real	5	Walker	4
Brewster	3	Donley	3	Hidalgo	4	Loving	3	Red River	3	Waller	3
Briscoe	3	Duval	3	Hill	4	Lubbock	3	Reeves	3	Ward	3
Brooks	3	Eastland	3	Hockley	3	Lynn	4	Refugio	3	Washington	4
Brown	3	Ector	2	Hood	3	Madison	4	Roberts	3	Webb	4
Burleson	2	Edwards	5	Hopkins	3	Marion	3	Robertson	3	Wharton	4
Burnet	3	El Paso	3	Houston	3	Martin	3	Rockwall	2	Wheeler	3
Caldwell	4	Ellis	3	Howard	3	Mason	2	Runnels	3	Wichita	2
Calhoun	3	Erath	3	Hudspeth	3	Matagorda	5	Rusk	3	Wilbarger	2
Callahan	3	Falls	4	Hunt	3	Maverick	5	Sabine	3	Willacy	4
Cameron	4	Fannin	2	Hutchinson	3	McCulloch	2	San Augustine	3	Williamson	5
Camp	4	Fayette	4	Irion	2	McLennan	4	San Jacinto	3	Wilson	3
Carson	3	Fisher	3	Jack	2	McMullen	3	San Patricio	3	Winkler	3
Cass	3	Floyd	4	Jackson	3	Medina	2	San Saba	4	Wise	3
Castro	3	Foard	2	Jasper	3	Menard	2	Schleicher	2	Wood	4
Chambers	3	Fort Bend	4	Jeff Davis	3	Midland	2	Scurry	3	Yoakum	4
Cherokee	3	Franklin	3	Jefferson	4	Milam	4	Shackelford	3	Young	2
Childress	3	Freestone	4	Jim Hogg	2	Mills	4	Shelby	3	Zapata	3
Clay	2	Frio	1	Jim Wells	3	Mitchell	3	Sherman	3	Zavala	5
Cochran	4	Gaines	3	Johnson	3	Montague	2	Smith	5		
Coke	2	Galveston	4	Jones	3	Montgomery	4	Somervell	2		
Coleman	3	Garza	4	Karnes	2	Moore	3	Starr	3		
Collin	4	Gillespie	4	Kaufman	3	Morris	3	Stephens	3		

Appendices:

- A. Acronyms and Glossary
- B. Expenditures on Communications Interoperability Equipment by: COG, Jurisdiction, Federal Fiscal Years (2006-2009), Grant Program, and Purchased Equipment Type
- C. “When They Can’t Talk” brochure – from the National Association of Counties
- D. “Operations Texas Talks” brochure
- E. DPS PowerPoint Presentation to 4th Annual Interoperable Communications Statewide Strategic Planning Session, 8/24/10
- F. Texas Statewide Communications Interoperability Plan (SCIP)-8/31/10 Refresh
- G. SCIP Implementation Report to U.S. Dept. of Homeland Security, Office of Emergency Communications, 2008
- H. SCIP Implementation Report to U.S. Dept. of Homeland Security, Office of Emergency Communications, 2009
- I. National Emergency Communications Plan, 2008

Appendix A:

Acronyms and Glossary

List of Acronyms

Acronym	Definition
COG	Council of Governments
DHS	Department of Homeland Security
DPS	Department of Public Safety
EMS	Emergency Medical Services
FCC	Federal Communications Commission
MHz	Megahertz
NECP	National Emergency Communications Plan
P25	Project 25 (formerly Association of Public Safety Communications Officials Project 25)
PSIC	Public Safety Interoperable Communications
RICP	Regional Interoperability Communications Plan
SAA	State Administrative Agency
SCIP	Statewide Communications Interoperability Plan
SOPs	Standard Operating Procedures
TSCIMM	Texas Statewide Communications Interoperability Maturity Model
TxRC	Texas Radio Coalition
UHF	Ultra High Frequency
VHF	Very High Frequency

Glossary

Term	Definitions
Consoles	Desktop Consoles are self-contained radio dispatching units that control single or multiple base stations. Consoles may be remotely located in another part of the building, a branch office, or even in another city. Multiple desktop consoles can work in parallel to access and control a radio system. IP dispatch applications can be used to dynamically connect disparate networks, or provide over-IP control for a single network. Dispatchers, network administrators or other authorized personnel can set up connections in seconds to communicate with radio users.
Gateway	A Gateway can simultaneously cross-connect different radio networks, connect radio networks to telephone or SATCOM systems, and network Radio over IP (RoIP) / Voice over IP (VoIP) talkpaths. Gateways provide flexible and scalable communications interoperability.
Inter Subsystem Interface	Inter Subsystem Interface (P25 ISSI) is a non-proprietary interface that enables RF subsystems (RFSSs) built by different manufacturers to be connected together into wide area networks. The wide area network connections using the ISSI provide an extended coverage area for subscriber units (SUs) that are roaming. The extended coverage area is important for public safety first responders that provide assistance in other jurisdictions during an emergency.
Microwave	Microwave systems can be used for any terrestrial based radio transmission including data, voice, and video. Both point-to-point and point-to-multipoint operations are permitted. For government agencies and municipalities, microwave systems can provide a more cost-effective solution with increased communications reliability and extended coverage over typical T1 and Fiber connections.
Mobile Communications Units	A Mobile Communications Unit (MCU) refers to any vehicular asset that can be deployed to provide or supplement communications capabilities in an incident area. Examples of the communications devices an MCU can house include subscriber and base station radios of various frequency bands, gateway devices, satellite phones, wireless computer networks, and video broadcasting/receiving equipment. MCUs provide the ability to communicate with every agency called upon to support an incident. This would include any federal agencies, state agencies, County Sheriffs' offices, municipal police departments, fire departments and protection districts/dispatch centers, highway departments, park departments, hospitals, ambulances, the American Red Cross, and amateur radio operators.

Glossary

Term	Definitions
Mobile and Portable Radios	Mobile Radios installed in vehicles as well as Portable Radios that are hand-held units can also be called subscriber units. The cost associated with Subscriber Units includes the cost for the hardware, as well as all the software flash upgrades and programming costs.
Narrowbanding	FCC Docket 99-87: In December 2004, the FCC mandated that all Land Mobile Radio Systems operating below 512 MHz must upgrade to Narrowband equipment that more efficiently uses the frequency spectrum. Licensees are required to switch from equipment that uses 25 KHz of bandwidth (Wideband) for each channel, to equipment that uses 12.5 KHz (Narrowband) bandwidth per channel. The deadline for licensees to complete the transition is 12-31-2012.
Project 25 Standards	Refers to the Project 25 (P25) suite of standards for digital radio communications for use by Federal, state/province and local public safety agencies in to enable them to communicate with other agencies and mutual aid response teams in emergencies. For additional information on P25 standards, please see http://www.project25.org/
Radio Towers/Antennas	Radio masts and towers are structures designed to support antennas for telecommunications systems. Antennas provide system capability to transmit and receive radio waves.
Repeaters	A radio repeater is a combination of a radio receiver and a radio transmitter that receives a weak or low-level signal and retransmits it at a higher level or higher power, so that the signal can cover longer distances without degradation. In dispatching, and emergency services communications, repeaters are used extensively to relay radio signals across a wider area. With most emergency dispatching systems, the repeater is synonymous with the base station, which performs both functions.

Appendix B:

Expenditures on Communications Interoperability Equipment by: COG, Jurisdiction, Federal Fiscal Year, Grant Program, and Purchased Equipment Type

Table B-I:
Expenditures on Communications Interoperability
Equipment by: COG, Jurisdiction, and Federal Fiscal
Years 2006-2009

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
<i>Alamo Area Council of Governments</i>	Bandera County	\$8,533.00				\$8,533.00
	Bexar County	\$299,393.30	\$90,072.08	\$127,552.50		\$517,017.88
	City of Ingram			\$27,050.96		\$27,050.96
	City of Kerrville			\$64,246.40		\$64,246.40
	City of San Antonio	\$46,911.85	\$309,604.71			\$356,516.56
	City of Schertz	\$12,234.00				\$12,234.00
	City of Windcrest	\$1,700.00				\$1,700.00
	Comal County	\$539,999.79	\$217,646.40			\$757,646.19
	Karnes County			\$20,727.88		\$20,727.88
	Kerr County			\$90,077.60	\$112,365.00	\$202,442.60
	Wilson County	\$49,811.84	\$11,204.00			\$61,015.84
<i>Alamo Area Council of Governments Total</i>		\$958,583.78	\$628,527.19	\$329,655.34	\$112,365.00	\$2,029,131.31

<i>Ark-Tex Council of Governments</i>	Ark-Tex COG	\$72,450.39	\$40,667.65			\$113,118.04
	Bowie County		\$54,915.23	\$23,966.00		\$78,881.23
	Cass County		\$79,324.80	\$147,334.40		\$226,659.20
	City of Atlanta		\$29,889.00	\$44,742.06		\$74,631.06
	City of Clarksville		\$27,874.17			\$27,874.17
	City of Hughes Springs		\$1,163.07			\$1,163.07
	City of Mount Pleasant		\$13,669.10			\$13,669.10
	City of Queen City		\$13,561.00		\$32,166.04	\$45,727.04
	City of Texarkana		\$27,319.04			\$27,319.04
	Delta County		\$58,931.46			\$58,931.46
	Franklin County		\$78,000.00			\$78,000.00
	Hopkins County		\$107,503.75			\$107,503.75

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	Lamar County		\$156,999.72			\$156,999.72
	Red River County		\$75,384.00			\$75,384.00
	Titus County		\$40,754.64	\$18,365.67		\$59,120.31
	City of Sulphur Springs			\$21,781.68		\$21,781.68
	City of Wake Village			\$2,502.55		\$2,502.55
Ark-Tex Council of Governments Total		\$72,450.39	\$805,956.63	\$258,692.36	\$32,166.04	\$1,169,265.42

Brazos Valley Council of Governments	Brazos County		\$67,862.19			\$67,862.19
	Burleson County	\$55,952.12	\$52,680.35	\$84,280.95	\$4,875.68	\$197,789.10
	City of Bryan	\$48,724.01	\$38,071.73			\$86,795.74
	City of College Station	\$1,091.25	\$14,775.15			\$15,866.40
	City of Navasota	\$4,506.24	\$46,413.00			\$50,919.24
	Grimes County	\$48,680.80	\$47,625.00			\$96,305.80
	Leon County	\$49,415.53	\$62,036.84			\$111,452.37
	Madison County	\$23,109.84	\$517.50			\$23,627.34
	Robertson County	\$50,795.41	\$84,529.30			\$135,324.71
	Washington County	\$53,559.58	\$10,428.36			\$63,987.94
Brazos Valley Council of Governments Total		\$335,834.78	\$424,939.42	\$84,280.95	\$4,875.68	\$849,930.83

Capital Area Council of Governments	Bastrop County	\$25,000.00	\$1,451,681.91			\$1,476,681.91
	Blanco County	\$38,700.00	\$44,021.54			\$82,721.54
	Burnet County	\$116,633.60	\$547,981.87	\$84,768.02	\$86,328.00	\$835,711.49
	Caldwell County	\$110,215.35	\$1,289,277.86			\$1,399,493.21
	City of Austin	\$144,576.49	\$44,812.16			\$189,388.65

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	Fayette County	\$60,764.59				\$60,764.59
	Hays County		\$12,600.00			\$12,600.00
	Lee County	\$29,472.40	\$95,695.44	\$363,155.33		\$488,323.17
	Llano County	\$83,342.18				\$83,342.18
	Travis County		\$10,320.00			\$10,320.00
	Williamson County	\$25,120.69	\$137,909.32			\$163,030.01
Capital Area Council of Governments Total		\$633,825.30	\$3,634,300.10	\$447,923.35	\$86,328.00	\$4,802,376.75

Central Texas Council of Governments	Bell County	\$765.55	\$574,231.58	\$649,553.10		\$1,224,550.23
	Central Texas COG	\$67,045.17	\$64,146.77			\$131,191.94
	City of Cameron	\$53,000.00				\$53,000.00
	City of Copperas Cove	\$383,504.00		\$950.00		\$384,454.00
	City of Lampasas		\$51,069.05	\$140,456.00		\$191,525.05
	City of Lometa	\$5,957.00				\$5,957.00
	Coryell County			\$143,547.75		\$143,547.75
	Mills County		\$7,550.00			\$7,550.00
	City of Morgan's Point Resort	\$34,394.16				\$34,394.16
	City of Rockdale	\$49,100.00				\$49,100.00
	Hamilton County	\$35,943.25				\$35,943.25
	Lampasas County			\$35,958.75	\$10,000.00	\$45,958.75
	Milam County			\$162,049.10		\$162,049.10
Central Texas Council of Governments Total		\$629,709.13	\$696,997.40	\$1,132,514.70	\$10,000.00	\$2,469,221.23

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
<i>Coastal Bend Council of Governments</i>	Aransas County	\$12,833.00	\$20,661.34		\$6,731.43	\$40,225.77
	Bee County		\$28,000.00	\$48,075.42		\$76,075.42
	Brooks County	\$33,560.82	\$123,971.41	\$19,525.00	\$12,950.00	\$190,007.23
	City of Alice	\$49,318.70	\$72,653.75	\$44,462.98	\$39,792.07	\$206,227.50
	City of Beeville	\$21,942.65		\$19,077.00		\$41,019.65
	City of Bishop	\$3,600.00		\$734.68		\$4,334.68
	City of Corpus Christi	\$46,592.97	\$7,055.23			\$53,648.20
	City of Falfurrias	\$10,000.00				\$10,000.00
	City of Freer	\$3,007.98	\$21,000.00			\$24,007.98
	City of Ingleside			\$173,975.06		\$173,975.06
	City of Port Aransas	\$4,517.50	\$23,049.00			\$27,566.50
	City of Portland	\$63,600.00				\$63,600.00
	City of Robstown			\$36,644.95		\$36,644.95
	Coastal Bend COG	\$5,441.00				\$5,441.00
	Duval County		\$50,000.00			\$50,000.00
	Jim Wells County	\$60,000.00	\$84,999.26			\$144,999.26
	Kenedy County		\$171,112.00			\$171,112.00
	Kleberg County	\$2,051.60		\$990.40		\$3,042.00
	Live Oak County/SO		\$42,116.30			\$42,116.30
	Nueces County	\$19,724.30				\$19,724.30
	Refugio County	\$79,703.00	\$10,000.00	\$8,488.46	\$1,826.11	\$100,017.57
	San Patricio County	\$29,625.00				\$29,625.00
<i>Coastal Bend Council of Governments Total</i>		\$445,518.52	\$654,618.29	\$351,973.95	\$61,299.61	\$1,513,410.37
<i>Concho Valley Council of Governments</i>	City of San Angelo		\$14,893.72			\$14,893.72
	Coke County	\$13,744.44				\$13,744.44

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	Concho County		\$270,686.66			\$270,686.66
	Concho Valley COG		\$14,893.72	\$1,260.00		\$16,153.72
	Crockett County	\$13,744.44				\$13,744.44
	Irion County	\$515.00				\$515.00
	Kimble County	\$13,744.44				\$13,744.44
	Mason County	\$13,744.44				\$13,744.44
	McCulloch County	\$13,744.44				\$13,744.44
	Menard County	\$363.22	\$14,893.72			\$15,256.94
	Reagan County	\$2,625.47				\$2,625.47
	Schleicher County	\$13,744.44	\$38,999.40			\$52,743.84
	Tom Green County	\$29,765.50	\$1,281.88			\$31,047.38
Concho Valley Council of Governments Total		\$115,735.83	\$355,649.10	\$1,260.00	\$-	\$472,644.93

Deep East Texas Council of Governments	Deep East Texas COG	\$69,097.47	\$249,532.50	\$238,646.82	\$168,681.18	\$725,957.97
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East Texas Council of Governments	Anderson County		\$193,247.48	\$42,699.00		\$235,946.48
	Camp County				\$57,287.16	\$57,287.16
	Cherokee County		\$118,881.40	\$26,362.65		\$145,244.05
	City of Athens	\$57,903.44				\$57,903.44
	City of Big Sandy			\$31,911.34		\$31,911.34
	City of Caney City				\$13,930.92	\$13,930.92
	City of Canton			\$61,214.76		\$61,214.76
	City of Chandler			\$87,136.95		\$87,136.95
	City of Cuney			\$9,947.40		\$9,947.40
	City of Eustace				\$14,364.91	\$14,364.91
	City of Gilmer	\$16,401.68	\$34,188.65		\$17,960.52	\$68,550.85

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	City of Henderson	\$24,228.97	\$621.25			\$24,850.22
	City of Jacksonville	\$15,615.69		\$7,500.00		\$23,115.69
	City of Kilgore		\$5,480.00		\$42,000.00	\$47,480.00
	City of Mineola	\$19,009.54				\$19,009.54
	City of Overton			\$13,715.55	\$12,948.65	\$26,664.20
	City of Palestine	\$634.00	\$56,907.54	\$1,330.00		\$58,871.54
	City of Quitman	\$7,750.50				\$7,750.50
	City of Tool				\$17,573.00	\$17,573.00
	City of Troup			\$10,643.00	\$10,480.00	\$21,123.00
	City of Tyler	\$57,518.91				\$57,518.91
	City of Van			\$39,035.50		\$39,035.50
	City of Waskom		\$4,800.00			\$4,800.00
	City of Winnsboro	\$13,023.41	\$10,378.00			\$23,401.41
	City of Winona	\$2,800.05				\$2,800.05
	City of Yantis	\$2,114.00				\$2,114.00
	Gregg County	\$21,101.88	\$56,425.25			\$77,527.13
	Harrison County			\$109,809.00		\$109,809.00
	Henderson County		\$35,355.26	\$117,052.00		\$152,407.26
	Marion County	\$36,942.28		\$29,450.00		\$66,392.28
	Rusk County	\$39,899.70	\$29,156.83	\$22,345.56		\$91,402.09
	Upshur County		\$28,250.28			\$28,250.28
	Van Zandt County			\$91,695.00		\$91,695.00
	Wood County		\$13,423.64	\$137,463.00		\$150,886.64
<i>East Texas Council of Governments Total</i>		\$314,944.05	\$587,115.58	\$839,310.71	\$186,545.16	\$1,927,915.50
<i>Golden Crescent Regional Planning Commission</i>						
	Calhoun County	\$31,134.04	\$33,269.88	\$85,256.42		\$149,660.34
	City of Cuero	\$5,329.61	\$68,460.21	\$17,970.00		\$91,759.82

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	City of Edna	\$5,487.40	\$6,875.00	\$18,665.68		\$31,028.08
	City of Ganado	\$5,777.05				\$5,777.05
	City of Goliad		\$10,268.35			\$10,268.35
	City of Gonzales	\$28,340.00	\$64,671.96	\$43,536.72		\$136,548.68
	City of Hallettsville	\$5,777.05	\$40,645.50	\$6,125.84	\$7,143.90	\$59,692.29
	City of Moulton	\$5,431.40	\$8,082.64	\$30,813.17		\$44,327.21
	City of Nixon		\$2,750.00			\$2,750.00
	City of Nordheim	\$5,777.05	\$3,125.23	\$5,081.92		\$13,984.20
	City of Point Comfort	\$5,777.05				\$5,777.05
	City of Port Lavaca	\$15,473.46	\$51,517.55	\$34,286.85		\$101,277.86
	City of Seadrift		\$2,465.98	\$2,239.16		\$4,705.14
	City of Shiner	\$5,283.52	\$18,841.03	\$31,604.78		\$55,729.33
	City of Victoria	\$35,791.47	\$15,461.00			\$51,252.47
	City of Waelder		\$11,756.00			\$11,756.00
	City of Yoakum	\$39,680.29	\$28,013.33	\$52,464.60		\$120,158.22
	City of Yorktown	\$5,329.63	\$33,273.66			\$38,603.29
	DeWitt County	\$29,131.24	\$25,269.92	\$6,037.90		\$60,439.06
	Golden Crescent RPG		\$2,100.00	\$124,745.43		\$126,845.43
	Goliad County	\$52,292.88				\$52,292.88
	Gonzales County	\$34,529.46	\$80,080.06	\$267,607.24	\$22,586.94	\$404,803.70
	Jackson County	\$30,725.48	\$38,796.58	\$90,994.50		\$160,516.56
	Lavaca County	\$20,777.05	\$45,011.57	\$30,650.14		\$96,438.76
	Victoria County	\$45,962.00	\$176,634.29	\$5,443.50		\$228,039.79
Golden Crescent Regional Planning Commission Total		\$413,807.13	\$767,369.74	\$853,523.85	\$29,730.84	\$2,064,431.56

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
<i>Heart of Texas Council of Governments</i>	Bosque County	\$8,754.60	\$52,022.25			\$60,776.85
	City of Beverly Hills		\$46,250.00			\$46,250.00
	City of Groesbeck		\$24,950.94			\$24,950.94
	City of Hillsboro			\$68,137.19		\$68,137.19
	City of Teague		\$17,398.15			\$17,398.15
	City of Waco		\$1,059,160.69	\$17,297.91		\$1,076,458.60
	Falls County	\$8,535.83	\$69,378.56			\$77,914.39
	Heart of Texas COG		\$10,938.80			\$10,938.80
	Hill County	\$14,343.25	\$65,830.24			\$80,173.49
	Limestone County	\$9,830.08	\$62,000.00			\$71,830.08
	McLennan County	\$16,647.18	\$351,320.92			\$367,968.10
<i>Heart of Texas Council of Governments Total</i>		\$58,110.94	\$1,759,250.55	\$85,435.10	\$-	\$1,902,796.59

<i>Houston-Galveston Area Council</i>	Austin County	\$76,332.58	\$11,777.81	\$167,901.90		\$256,012.29
	Brazoria County	\$307,172.47	\$246,875.11	\$10,794.35		\$564,841.93
	Chambers County	\$105,020.11				\$105,020.11
	City of Baytown		\$39,614.51			\$39,614.51
	City of Clear Lake Shores			\$24,262.56		\$24,262.56
	City of Dayton				\$40,478.10	\$40,478.10
	City of Deer Park	\$4,970.00				\$4,970.00
	City of Galveston		\$967.73			\$967.73
	City of Houston	\$439,926.26	\$6,617,472.00			\$7,057,398.26
	City of Liberty	\$12,548.00				\$12,548.00
	City of Meadows Place		\$36,999.79			\$36,999.79
	City of Nassau Bay	\$20,000.00				\$20,000.00
	City of Pasadena	\$116,400.00	\$194,352.89			\$310,752.89

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	City of Simonton		\$11,770.03			\$11,770.03
	City of Taylor Lake Village				\$169,448.74	\$169,448.74
	Colorado County	\$75,000.00	\$861,191.00	\$42,018.10		\$978,209.10
	Fort Bend County	\$138,293.78	\$1,517,799.00			\$1,656,092.78
	Harris County	\$3,364,994.68	\$2,967,953.87			\$6,332,948.55
	Houston Metro Transit Auth	\$296,562.78				\$296,562.78
	Matagorda County	\$248,485.28	\$400,000.00			\$648,485.28
	Montgomery County	\$7,951.75	\$129,735.35			\$137,687.10
	Walker County	\$162,559.82	\$166,049.01			\$328,608.83
	Waller County		\$70,060.74	\$321,499.43		\$391,560.17
	Wharton County			\$425,938.20	\$296,340.71	\$722,278.91
	PSIC HGAC ONE		\$2,242,178.60			\$2,242,178.60
	PSIS HGAC TWO		\$1,462,458.91			\$1,462,458.91
Houston-Galveston Area Council Total		\$5,376,217.51	\$16,977,256.35	\$992,414.54	\$506,267.55	\$23,852,155.95

Lower Rio Grande Valley Development Council	Cameron County	\$21,228.60	\$395,253.99	\$29,640.03		\$446,122.62
	City of Alton			\$19,780.00		\$19,780.00
	City of Brownsville	\$75,969.89				\$75,969.89
	City of Edinburg	\$29,906.40	\$72,760.01			\$102,666.41
	City of Harlingen			\$83,485.00		\$83,485.00
	City of La Joya	\$10,976.00				\$10,976.00
	City of Los Fresnos	\$62,906.71				\$62,906.71
	City of McAllen	\$71,183.84		\$449.85		\$71,633.69
	City of Mission	\$12,000.00		\$175,000.00	\$34,264.80	\$221,264.80
	City of Palmhurst	\$22,115.67				\$22,115.67

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	City of Palmview			\$20,000.00	\$4,537.60	\$24,537.60
	City of Pharr	\$30,993.95				\$30,993.95
	City of Port Isabel	\$43,500.00				\$43,500.00
	City of Raymondville			\$138,992.91		\$138,992.91
	City of San Juan	\$26,363.42				\$26,363.42
	City of Sullivan City	\$2,545.00				\$2,545.00
	City of Weslaco	\$16,680.89				\$16,680.89
	Hidalgo County		\$300,000.00			\$300,000.00
	Lower Rio Grande Valley Development COG	\$90,022.99	\$29,184.69	\$17,793.88		\$137,001.56
	Town of South Padre Island	\$120,000.00				\$120,000.00
	Willacy County	\$137,925.25	\$66,605.64			\$204,530.89
Lower Rio Grande Valley Development Council Total		\$774,318.61	\$863,804.33	\$485,141.67	\$38,802.40	\$2,162,067.01

Middle Rio Grande Development Council	Middle Rio Grande Development COG	\$45,802.11	\$743,110.90	\$788,666.78	\$96,422.04	\$1,674,001.83
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Nortex Regional Planning Commission	Archer County	\$8,385.00	\$57,620.00	\$56,864.90	\$30,770.00	\$153,639.90
	Baylor County	\$20,036.00	\$1,808.95			\$21,844.95
	Cashion Community	\$5,687.00				\$5,687.00
	City of Archer City		\$7,980.00			\$7,980.00
	City of Bowie	\$18,554.77	\$51,576.93			\$70,131.70
	City of Bryson	\$2,097.00				\$2,097.00
	City of Burkburnett	\$8,550.00	\$28,925.00			\$37,475.00
	City of Electra	\$12,201.00		\$47,618.00		\$59,819.00
	City of Graham	\$10,932.00	\$16,775.01			\$27,707.01

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	City of Iowa Park	\$33,159.00				\$33,159.00
	City of Jacksboro		\$61,656.60			\$61,656.60
	City of Nocona		\$16,761.44			\$16,761.44
	City of Olney	\$16,867.00				\$16,867.00
	City of Paducah	\$8,119.76				\$8,119.76
	City of Seymour		\$3,000.00			\$3,000.00
	City of Vernon	\$18,212.96	\$28,675.00			\$46,887.96
	City of Wichita Falls	\$12,090.00		\$51,382.55		\$63,472.55
	Clay County	\$26,748.00	\$7,621.64	\$72,665.94		\$107,035.58
	Cottle County	\$6,531.30	\$17,998.95			\$24,530.25
	Foard County	\$6,563.78				\$6,563.78
	Hardeman County		\$15,150.30		\$65,599.00	\$80,749.30
	Montague County	\$9,587.38	\$17,491.23	\$86,819.80		\$113,898.41
	Nortex Regional Planning Commission	\$9,908.00	\$42,807.92	\$9,600.00		\$62,315.92
	Wichita County	\$6,098.50	\$29,473.00	\$93,072.51	\$81,901.16	\$210,545.17
	Wilbarger County	\$13,275.00	\$20,788.00			\$34,063.00
	Young County	\$7,695.00		\$8,475.00	\$93,942.25	\$110,112.25
<i>Nortex Regional Planning Commission Total</i>		\$261,298.45	\$426,109.97	\$426,498.70	\$272,212.41	\$1,386,119.53

<i>North Central Texas Council of Governments</i>	City of Arlington	\$15,002.06	\$193,396.91	\$13,915.72		\$222,314.69
	City of Azle	\$32,923.56				\$32,923.56
	City of Bedford		\$1,579.95			\$1,579.95
	City of Cleburne	\$930.00	\$177,942.75			\$178,872.75
	City of Commerce			\$36,008.79		\$36,008.79
	City of Coppell		\$62,804.39			\$62,804.39

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	City of Corsicana	\$5,520.00				\$5,520.00
	City of Crowley		\$115,431.00			\$115,431.00
	City of Dallas	\$171,585.04	\$2,829,634.03			\$3,001,219.07
	City of DeSoto		\$19,651.65	\$18,877.26		\$38,528.91
	City of Forest Hill	\$16,609.10				\$16,609.10
	City of Fort Worth	\$29,363.04	\$513,603.81			\$542,966.85
	City of Garland	\$58,871.00	\$42,924.15	\$1,854.44		\$103,649.59
	City of Irving		\$127,762.47			\$127,762.47
	City of Mesquite		\$9,206.10	\$3,476.49		\$12,682.59
	City of Red Oak			\$284,006.52	\$86,210.00	\$370,216.52
	City of Rowlett	\$2,883.00	\$12,244.06			\$15,127.06
	Collin County	\$21,734.39	\$3,711.60	\$98,959.50		\$124,405.49
	Dallas County	\$2,316.61				\$2,316.61
	Denton County	\$514,958.50	\$449,118.29			\$964,076.79
	DFW Airport Board	\$4,407.00				\$4,407.00
	Erath County	\$27,039.65				\$27,039.65
	Hood County	\$34,115.73		\$58,605.84		\$92,721.57
	Johnson County	\$150,997.79	\$67,500.00			\$218,497.79
	Navarro County	\$100,668.11				\$100,668.11
	North Central Texas COG	\$22,643.56	\$98.00			\$22,741.56
	Palo Pinto County	\$28,244.98				\$28,244.98
	Parker County	\$48,407.94				\$48,407.94
	Somervell County	\$28,749.76				\$28,749.76
	Tarrant County	\$26,178.03			\$339.75	\$26,517.78
	Wise County	\$1,213.33		\$8,556.00		\$9,769.33
North Central Texas Council of Governments Total		\$1,345,362.18	\$4,626,609.16	\$524,260.56	\$86,549.75	\$6,582,781.65

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
<i>Panhandle Regional Planning Commission</i>	City of Amarillo	\$137,295.45	\$10,201.78			\$147,497.23
	NORTEX PSIC		\$234,567.00			\$234,567.00
	SPAG PSIC		\$915,100.92			\$915,100.92
	Panhandle Regional Planning Commission	\$539,927.82	\$1,466,320.58	\$1,035,366.63	\$193,604.75	\$3,235,219.78
	WCTCOG PSIC		\$334,559.00			\$334,559.00
<i>Panhandle Regional Planning Commission Total</i>		\$677,223.27	\$2,960,749.28	\$1,035,366.63	\$193,604.75	\$4,866,943.93
<i>Permian Basin Regional Planning Commission</i>	Borden County	\$21,438.90				\$21,438.90
	City of Big Spring	\$7,094.90				\$7,094.90
	City of Crane	\$19,986.14				\$19,986.14
	City of Fort Stockton	\$17,687.50				\$17,687.50
	City of Lamesa	\$18,796.00				\$18,796.00
	City of Midland	\$299,963.63				\$299,963.63
	City of Monahans	\$19,198.50				\$19,198.50
	City of Odessa	\$79,482.00				\$79,482.00
	City of Seagraves	\$3,016.00				\$3,016.00
	Crane County	\$30,275.00				\$30,275.00
	Dawson County	\$32,938.00				\$32,938.00
	Ector County	\$102,731.25				\$102,731.25
	Howard County	\$7,094.90				\$7,094.90
	Midland County	\$99,700.00				\$99,700.00
	Permian Basin Regional Planning Commission	\$4,528.45	\$953,173.76			\$957,702.21
	Town of Pecos	\$27,421.24				\$27,421.24

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	Ward County	\$19,450.00				\$19,450.00
	Winkler County	\$7,375.00				\$7,375.00
<i>Permian Basin Regional Planning Commission Total</i>		\$818,177.41	\$953,173.76	\$-	\$-	\$1,771,351.17
<i>Rio Grande Council of Governments</i>	Brewster County	\$25,458.92	\$34,920.00	\$29,961.12		\$90,340.04
	City of El Paso	\$38,527.64	\$1,544,484.35			\$1,583,011.99
	Culberson County	\$29,261.50		\$10,937.22		\$40,198.72
	El Paso County	\$33,054.98	\$17,168.25			\$50,223.23
	Hudspeth County	\$298.99		\$42,797.56		\$43,096.55
	Jeff Davis County	\$4,984.74		\$100,060.50		\$105,045.24
	Presidio County	\$38,308.00	\$94,303.73			\$132,611.73
	Tigua Tribe Ysleta del Sur Pueblo	\$29,344.04	\$97,208.49			\$126,552.53
	PSIC RGCOG		\$2,638,531.81			\$2,638,531.81
<i>Rio Grande Council of Governments Total</i>		\$199,238.81	\$4,426,616.63	\$183,756.40	\$-	\$4,809,611.84
<i>South East Texas Regional Planning Commission</i>	City of Beaumont	\$42,827.30	\$261,800.00	\$44,130.35		\$348,757.65
	City of Groves	\$10,470.72				\$10,470.72
	City of Kountze		\$2,618.00	\$13,991.46		\$16,609.46
	City of Lumberton		\$6,370.00	\$48,344.74	\$61,900.00	\$116,614.74
	City of Port Arthur	\$42,669.30				\$42,669.30
	City of Port Neches		\$62,862.50			\$62,862.50
	City of Silsbee		\$11,716.32	\$80,934.47	\$18,805.68	\$111,456.47
	City of Sour Lake		\$1,300.00	\$12,814.52	\$29,565.43	\$43,679.95

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	Hardin County	\$5,000.00	\$179,938.57	\$145,289.58	\$36,987.21	\$367,215.36
	Jefferson County		\$90,828.36	\$39,989.38		\$130,817.74
	Orange County		\$376,989.35	\$151,398.18	\$6,934.78	\$535,322.31
<i>South East Texas Regional Planning Commission Total</i>		\$100,967.32	\$994,423.10	\$536,892.68	\$154,193.10	\$1,786,476.20
<i>South Plains Association of Governments</i>	City of Lubbock	\$161,998.34	\$64,124.00			\$226,122.34
	City of Wolfforth	\$7,084.75	\$15,211.25			\$22,296.00
	Lubbock County	\$76,967.22	\$100,000.00			\$176,967.22
	South Plains COG	\$50,746.95	\$793,767.14			\$844,514.09
<i>South Plains Association of Governments Total</i>		\$296,797.26	\$973,102.39	\$-	\$-	\$1,269,899.65
<i>South Texas Development Council</i>	City of La Grulla	\$3,460.17				\$3,460.17
	City of Rio Grande City	\$51,270.83				\$51,270.83
	City of Roma	\$52,471.50	\$240,897.99			\$293,369.49
	Jim Hogg County	\$34,377.55				\$34,377.55
	South Texas Development COG	\$105,066.68				\$105,066.68
	Starr County	\$37,242.02	\$240,897.99	\$62,757.60		\$340,897.61
	Webb County	\$29,294.93	\$240,897.99			\$270,192.92
	Zapata County	\$52,910.93	\$240,897.99			\$293,808.92
<i>South Texas Development Council Total</i>		\$366,094.61	\$963,591.96	\$62,757.60	\$-	\$1,392,444.17

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
<i>Texoma Council of Governments</i>	City of Bonham	\$11,608.31	\$51,557.01			\$63,165.32
	City of Denison		\$33,348.70	\$76,600.00		\$109,948.70
	City of Gainesville		\$64,225.94			\$64,225.94
	City of Sherman		\$42,553.02			\$42,553.02
	Cooke County	\$19,065.41	\$29,283.86	\$27,733.18		\$76,082.45
	Fannin County	\$22,225.88	\$31,789.68			\$54,015.56
	Grayson County		\$2,058.44	\$71,515.90		\$73,574.34
	Texoma COG	\$73,182.79				\$73,182.79
<i>Texoma Council of Governments Total</i>		\$126,082.39	\$254,816.65	\$175,849.08	\$-	\$556,748.12

<i>West Central Texas Council of Governments</i>	Brown County		\$58,236.56	\$209,748.44		\$267,985.00
	Callahan County	\$6,100.00	\$57,763.48	\$50,862.50		\$114,725.98
	City of Abilene	\$40,732.25	\$14,595.40			\$55,327.65
	Coleman County		\$58,236.56	\$50,862.50		\$109,099.06
	Comanche County	\$16,990.00	\$68,158.50			\$85,148.50
	Eastland County	\$3,969.73	\$57,943.35	\$39,030.15		\$100,943.23
	Fisher County		\$58,189.69	\$50,815.50		\$109,005.19
	Haskell County		\$58,229.80	\$50,651.00		\$108,880.80
	Jones County		\$58,236.56			\$58,236.56
	Kent County	\$15,000.00	\$50,295.56			\$65,295.56
	Knox County		\$58,236.56			\$58,236.56
	Mitchell County		\$58,200.00	\$17,187.00		\$75,387.00
	Nolan County		\$58,208.64	\$50,850.12		\$109,058.76
	Runnels County		\$58,171.66	\$45,660.92		\$103,832.58
	Scurry County		\$197,470.84			\$197,470.84
	Shackelford County		\$56,924.68	\$50,862.50	\$20,549.52	\$128,336.70

COUNCIL OF GOVERNMENT	JURISDICTION	2006	2007	2008	2009	TOTAL
	Stephens County	\$22,720.00	\$58,236.56			\$80,956.56
	Stonewall County		\$50,280.75	\$472.00		\$50,752.75
	Taylor County	\$5,331.63	\$58,236.56	\$50,862.50		\$114,430.69
	Throckmorton County		\$57,303.73	\$3,928.00		\$61,231.73
	West Central Texas COG	\$2,843.00	\$6,711.25			\$9,554.25
West Central Texas Council of Governments Total		\$113,686.61	\$1,257,866.69	\$671,793.13	\$20,549.52	\$2,063,895.95

TXDPS Public Safety Communications Bureau	PSIC			\$2,898,351.58		\$2,898,351.58
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State Administrative Agency	PSIC SAA Region		\$3,864,972.76			\$3,864,972.76
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**GRAND
TOTAL \$80,864,903.80**

Table B-2:
Expenditures on Communications Interoperability
Equipment by Grant Program and Federal Fiscal Years
2006 - 2009

Yearly Expenditures by Grant

Program	2006 Funds	Program	2007 Funds	Program	2008 Funds	Program	2009 Funds
2006 BZPP	\$2,087,355.01	2007 BZPP	\$388,569.70	2008 BZPP	\$284,021.76	2009 DFWA UASI	\$339.75
2006 CCP	\$422.57	2007 CCP	\$26,996.58	2008 CCP	\$13,494.90	2009 Houston UASI LEAP	\$169,448.74
2006 DFWA UASI	\$931,122.43	2007 Dallas UASI	\$4,222,493.89	2008 DFWA UASI	\$15,770.16	2009 Operation Stonegarden	\$8,557.54
2006 Houston UASI	\$1,711,455.23	2007 EP UASI	\$1,580,463.85	2008 DFWA UASI LEAP	\$98,959.50	2009 SHSP	\$816,756.17
2006 LETPP	\$4,013,527.19	2007 Houston UASI	\$10,501,228.72	2008 MMRS	\$17,793.88	2009 SHSP LEAP	\$1,065,490.83
2006 MMRS	\$196,859.42	2007 LETPP	\$8,624,637.85	2008 SHSP	\$7,349,960.80		
2006 SA UASI	\$777,959.01	2007 MMRS	\$67,845.32	2008 SHSP LEAP	\$2,726,613.90		
2006 SHSP	\$4,533,620.22	2007 PSIC	\$14,464,901.91				
2006 TSGP	\$296,562.78	2007 PSIC (Matching Funds)	\$1,474,571.32				
		2007 SA UASI	\$408,764.58				
		2007 SHSP	\$9,089,986.71				
YEARLY TOTAL	\$14,548,883.86		\$50,850,460.43		\$10,506,614.90		\$2,060,593.03

Acronym	Definition
BZPP	Buffer Zone Protection Plan
CCP	Citizen Corps Program
DFWA	Dallas/Fort Worth Area
LEAP	Leveraging Educational Assistance Partnership
LETPP	Law Enforcement Terrorism Prevention Program
MMRS	Metropolitan Medical Response System Program
PSIC	Public Safety Interoperable Communications (Grant Program)
TSGP	Transit Security Grant Program

Acronym	Definition
SA	San Antonio
SHSP	State Homeland Security Program
TSGP	Transit Security Grant Program
UASI	Urban Area Security Initiative

Table B-3:
Expenditures on Communications Interoperability
Equipment by Equipment Type and Federal Fiscal Years
2006-2009

EQUIPMENT EXENDITURES* PER YEAR (\$80,864,903.80)



EQUIPMENT	2006	2007	2008	2009	TOTALS
BASE STATION	\$2,479,635.15	\$1,989,363.49	\$2,897,802.26	\$357,271.85	\$7,724,072.75
HI FREQUENCY	\$33,873.45	\$67,761.48	\$12,385.85	\$2,060.00	\$116,080.78
MOBILE	\$2,435,680.51	\$7,372,789.14	\$3,409,246.15	\$584,333.46	\$13,802,049.26
PORTABLE	\$5,052,046.14	\$6,342,080.88	\$3,815,892.93	\$551,358.72	\$15,761,378.67
REPEATER	\$1,179,786.43	\$8,068,855.66	\$593,103.45	\$80,981.49	\$9,922,727.03
RECEIVER	\$-	\$166,823.05	\$43,492.06	\$64,488.61	\$274,803.72
BRIDGING/PATCHING	\$514,248.35	\$12,115,439.06	\$1,919,420.66	\$35,288.74	\$14,584,396.81
AMPLIFIER	\$24,310.37	\$129,349.72	\$-	\$-	\$153,660.09
INTERCOM (LOCAL)	\$28,839.49	\$44,761.65	\$8,830.76	\$-	\$82,431.90
MICROWAVE LINK	\$970,003.63	\$4,286,839.49	\$59,774.51	\$103,445.00	\$5,420,062.63
CABLING	\$9,436.99	\$252,332.34	\$3,318.89	\$4,279.90	\$269,368.12
PORTABLE ACCESSORY	\$266,104.80	\$253,201.91	\$298,661.69	\$35,700.32	\$853,668.72
TOWER/ANTENNA	\$1,554,918.55	\$9,760,862.56	\$343,037.20	\$241,384.94	\$11,900,203.25
YEARLY TOTALS	\$14,548,883.86	\$50,850,460.43	\$13,404,966.41	\$2,060,593.03	\$80,864,903.73

Appendix C:

“When They Can’t Talk” Brochure - from the National Association of Counties



When They Can't Talk

Lives are Lost

**What Public Officials Need
to Know about Interoperability**



You grew up watching cop shows on television. When the police were in trouble, they could pick up the radio anywhere, anytime, and help would instantly arrive. In reality, this is often not the case. We all watched in horror as the second tower of the World Trade Center collapsed on September 11, 2001. Did you know that police received the radio message that the building was going to collapse, but firefighters never received that message because they used different radio frequencies?

- **Did you know** that the police, EMS teams, and firefighters sometimes have to juggle as many as five different radios because each agency communicates on different systems?
- **Did you know** that first responders had to use runners to carry messages from one command center to another in the immediate aftermath of the Oklahoma City bombing because they did not have common radio systems?
- **Do you know** how often agencies cannot talk to one another or to agencies in their neighboring cities, counties, or states? Is yours one of them?

While events of the magnitude of the attacks of September 11, 2001, or Oklahoma City do not occur every day, there are many daily events that require different agencies and jurisdictions to be able to communicate with one another. Incidents such as traffic crashes, missing children, fires, high-speed chases, rescues, and chemical spills occur with frightening regularity and they know no boundaries. When they occur in your community, will your agencies be able to talk to one another?

Why Can't They Talk?

Public safety agencies historically have depended upon their own stand-alone radio communication systems and they are often incompatible with systems used in neighboring jurisdictions or with other disciplines like fire and EMS.

Not only are there different systems for different agencies within one community, different jurisdictions maintain their own systems, too. There are approximately 2.5 million public safety first responders in the United States. They work for 18,000 state and local law enforcement agencies, 26,000 fire departments, and more than 6,000 rescue departments, plus federal law enforcement, tribal law enforcement and other agencies, such as state and federal emergency management, transportation, and the public utilities who all need to talk to one another during critical incidents.



Who Is Public Safety?

According to definitions from the Public Safety Wireless Advisory Committee (PSWAC), public safety service providers perform emergency first response missions to protect and preserve life, property, and natural resources and to serve the public welfare through local, state, or federal governments as defined in law. Public safety support providers include those whose primary mission might not fall within the classic public safety definition, but who may provide vital support to the general public and/or the public safety official. Law enforcement, fire, and EMS fit the first category, while public health, transportation or public utility workers fit the second. Public safety service providers also include non-governmental organizations who perform public safety functions on behalf of the government. For example, a number of local governments contract with private groups for emergency medical services.

Why Is This Important To You?

The public looks to you — their elected and appointed officials — to provide basic public safety, and guidance and management during a crisis. You are responsible for making critical funding decisions using limited taxpayer dollars. You understand the political dynamics in your community and in the surrounding jurisdictions. Community residents expect the public sector to function like a business — consistent and effective customer service, everywhere and at any time.

Ultimately, the public expects their lives and property to be protected by all governments — local, state, or federal — without distinction as to who responds to their needs.

Understanding the current status of public safety communication systems in your community — its capabilities and limitations and plans for upgrading or replacing those systems — is critical. If your public safety agencies cannot communicate directly with one another by radio and data systems (such as computer systems) to coordinate life-saving activities, inevitably some lives will be lost.

Interoperability. What Is It?

Interoperability is the ability of emergency responders to communicate among jurisdictions, disciplines, and levels of government, using a variety of frequency bands, as needed and as authorized. System operability is required for system interoperability. Most people assume that public safety is already interoperable. In too many cases, public safety officials can't even talk to their own agencies.

Equally as critical as interoperability is the need for basic communications within public safety agencies. When the issue of interoperability is raised, officials respond that they are unable to even talk to their own personnel. The first priority must be to provide public safety with mission critical communication systems that provide reliable agency-specific — police, fire, EMS — communications. (Mission-critical communications are those required when life or property is at stake.) As jurisdictions build or upgrade current systems, that priority should be expanded to include the provision of reliable and interoperable local and regional communications, and ultimately reliable and interoperable local, state, and federal communications.

Why can't they just use cell phones?

Unfortunately it's not that simple. Although public safety regularly use cellular phones, personal digital assistants (PDAs), and other commercial wireless devices and services, these devices are currently not sufficiently suited for public safety mission-critical communications during critical incidents. Wireless systems often become overloaded during

a crisis preventing first responders from accessing them which makes this application less desirable to use in an emergency.

Public safety officials cannot depend upon commercial systems that can be overloaded and unavailable.

Experience has shown such systems are often the most unreliable during critical incidents when public demand overwhelms the systems.

Public safety officials have unique and demanding communications requirements. Optimal public safety communication systems require:

- Dedicated channels and priority access that is available at all times to handle unexpected emergencies.
- Reliable operability for one-to-many broadcast capability, a feature not generally available in cellular systems.
- Highly reliable and redundant networks that are engineered and maintained to withstand natural disasters and other emergencies.
- The best possible coverage within a given geographic area, with a minimum of dead zones.
- And, unique equipment designed for quick response in emergency situations -- dialing, waiting for call connection, and busy signals are unacceptable during critical events when seconds can mean the difference between life and death.



Why Aren't Public Safety Communications Already Interoperable?

Five key reasons. Incompatible and aging communications equipment, limited and fragmented funding, limited and fragmented planning, a lack of cooperation and coordination, and limited and fragmented radio spectrum.

- Different jurisdictions use different equipment and different radio frequencies that cannot communicate with one another, just as different computer operating systems will not work together or an AM receiver will not accept an FM signal. While standards for technology and equipment are improving, they are incomplete. Plus, older "legacy" systems were created before newer standards were developed or implemented.
- There is limited funding to replace or update expensive communications equipment, and different communities and levels of government have their own budget cycles and funding priorities.
- Planning is limited and fragmented. Without adequate planning, time and money can be wasted and end results can be disappointing. Agencies, jurisdictions, and levels of government compete for scarce dollars, inhibiting the partnership and leadership required to develop interoperability.
- The human factor is a substantial obstacle — agencies are reluctant to give up management and control of their communications systems. Interoperability requires a certain amount of shared management, control, and policies and procedures.
- There is a limited and fragmented amount of radio spectrum available to public safety.



Today's Rapid Information-Sharing Environment

Today there are methods to share information with first responders that are rapidly changing how responders receive and transmit information. Gone are the days when radio transmissions were the only way for responders to share information. Mobile Data Terminals (MDTs) are commonplace in emergency vehicles, and are even used on such vehicles as police motorcycles.

An MDT is a laptop computer set up to work in a vehicle such as the cab of a fire truck or police cruiser. It is used to communicate with a central dispatch office as well as to connect with state and federal criminal information databases. It is more common now for responders to rely on an MDT to advise their dispatching office on their location, duty status, and to request information.

MDTs are also used by responders to access databases such as sophisticated geographic information system (GIS) maps, building floor plans, driver's license and vehicle registration information, and criminal histories. Rapid and reliable access to these data is an important life-safety issue for responders.

MDTs feature a screen on which to view information and a keypad for entering information, and may be connected to various peripheral devices, such as a two-way radio. Today, most MDTs contain full, PC-equivalent software and hardware, including secure wireless capabilities.

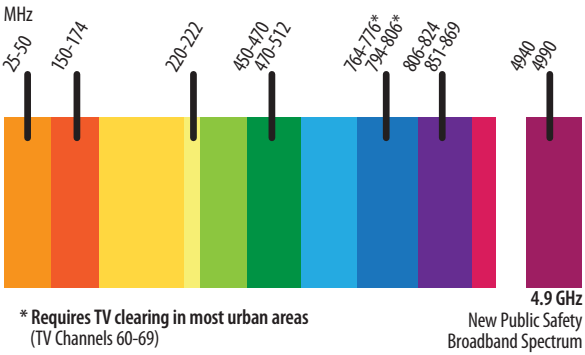
While there are standards for interoperable data systems to share information, the same challenges apply to these systems as to radio systems in accessibility, operability, reliability, coverage areas, and security.



What Is Radio Spectrum?

It is electronic real estate — the complete range of frequencies and channels that can be used for radio communications. Spectrum is the highway over which voice, data, and image communications travel. Radio spectrum, one of our nation’s most valuable resources, is a finite resource — what exists today is all there ever will be.

Public Safety Radio Spectrum Bands



The Federal Communications Commission (FCC) has allocated certain frequencies or channels to public safety, but it is inadequate and scattered widely in 11 discrete bands (each indicated with a frequency range in the illustration) across the spectrum, making it difficult for different agencies and jurisdictions to communicate.

Initially, almost all public safety communications were confined to the low end of the frequency range, but as technology advanced and improved, transmission at higher frequencies became possible, offering a temporary solution for congestion and crowding. The result — public safety currently operates in 10 separate bands, which has added capacity, but which has also caused the fragmentation that characterizes the public safety spectrum today.

How Can I Help My Constituents and Colleagues Understand the Importance of Interoperability?

Your role as a public official provides you the unique opportunity to take the initiative. Your constituents and colleagues need to be educated about the

importance of an operable and interoperable public safety communications system that will make it possible for local, state, and federal public safety agencies to talk to one another, to coordinate life-saving operations, and to provide a basic level of public safety.

Public perceptions are shaped by the news shows and articles, movies, and television that tell a different story from the true state of public safety communications. The public that reads news stories about computers in patrol cars, amazing life-saving technologies in rescue vehicles, and the latest state-of-the-art dispatch center may find it difficult to believe that their public safety agencies cannot talk to one another.

This is a job that requires policymakers across jurisdictions to work together for the common good — to plan, fund, build, and govern interoperable public safety communications systems. Policymakers at all levels need to collaborate to develop communications interoperability for emergency response and incident prevention. It begins with a dialogue among the stakeholders.

What Is Your Role?

Creating interoperability requires leadership, planning, and the development of partnerships among disparate groups at the local, state, and federal level. In order to effectively respond to emergencies, all levels of government and industry must plan for interoperability among all parties from the outset. The ability to be in voice contact and to read and exchange data among all emergency responders should be designed in from the start.



State and local governments must take the lead to collaboratively formulate an interoperability architecture that provides a roadmap for all to follow.

In short, public officials at all levels of government should:

- Understand the importance of operability and interoperability
- Be able to communicate the benefits of interoperability effectively to the public
- Understand the political and institutional barriers within the public safety community that can impede interoperability
- Facilitate collaborative planning among local, state, and federal government agencies
- Find out where your local jurisdiction fits with the Statewide Communications Interoperability Plan (SCIP) and learn about the larger role of the National Emergency Communications Plan.
- Encourage the development of flexible and open architectures and standards; and
- Support funding for public safety agencies that work to achieve interoperability within an agreed-upon plan.

Where Are You Now?

What Is the Status of Your Public Safety Communications?

The basic questions to consider are:

- What types of emergencies like traffic crashes typically occur in your community, region, or state and which public safety agencies would respond to each of them?
- How about major crimes like bank robberies or large-scale fires or natural disasters like hurricanes or earthquakes?
- Who needs to talk to one another every day?
- Who should be able to communicate and share data in the first eight hours of an emergency?
- Who will need to be added to that initial group if the emergency continues for longer than eight hours?

Once you know the answers to these questions, assess your resources. For example, what existing communications infrastructure such as radio towers do you already have? What financial resources are budgeted for public



safety communications? There are assessment tools that can be used to determine the level of interoperability in your community, region, or state.

How Much Will It Cost?

There are several issues to consider, including what is already being spent on public safety communications in your area and how much it will cost if you don't develop interoperability. Planning for interoperability can be incorporated into the process of replacing and upgrading communication systems.

Individual costs will depend on the state of communications in your area and which short-and long-term direction you choose to follow. The nationwide investment in radio systems and supporting infrastructures is substantial.

As agencies replace aging equipment and adopt new technologies, the amount of money invested in communications equipment will continue to grow.

Solutions to this national issue can only be achieved through cooperation between all levels of government.

How Can You Achieve Interoperability?

Interoperability begins with leadership and partnerships. It begins with open, equitable discussions among all the stakeholders. Look beyond turf concerns and focus on partnerships. Develop a common voice to

facilitate budget and policy decisions. Strength in improving interoperability is built by working together with agencies and jurisdictions that have traditionally been viewed as competitors for scarce dollars.

Before developing the solution, define the problem by performing a complete assessment of your current state of communications. This includes understanding what your first responders need. Planning includes policies and procedures, building a governing structure, and identifying potential resources.

This is not a “one size fits all” problem and there is no single solution. There are short- and long-term strategies for improving interoperability — some involve improving coordination and cooperation among responding agencies and jurisdictions. Other strategies require longer term planning and implementation of new systems, policies, and operating procedures. Expectations need to be realistic, solutions take time.

Where Can I Learn More About Interoperability?

A guide collectively created by a task force of national associations representing public officials at local and state levels, titled, *Why Can't We Talk? Working Together to Bridge the Communications Gap to Save Lives*. This booklet begins to answer these questions and more.

Much more information is kept updated on the SAFECOM Program website at www.safecomprogram.gov.

Working Together

The inability of our public safety officials to readily communicate with one another threatens the public's safety and often results in unnecessary loss of lives and property. Recognizing that solutions to this national issue can only be achieved through cooperation between all levels of government, representatives from state and local government and associations serving local and state governments, meet regularly through the SAFECOM Program.

Created in 2003, the SAFECOM Program brings together public safety practitioners and policymakers. Guided by an Executive Committee which provides strategic leadership, the SAFECOM Emergency Response Council is a vehicle to provide a broad base of input from the public safety community on its user needs to the SAFECOM program. The ERC provides a form for individuals with specialized skills and common interest to share best practices and lessons learned so that interested parties at all levels of government can gain from one another's experience. Emergency responders and policymakers from federal, state, local, and tribal governments comprise the SAFECOM EC and ERC.

Achieving interoperability is a challenging job. Without the collective voices of elected and appointed officials, without partnership, cooperation, and leadership at all levels, it is a job that will not get done. It is hoped that this guide will serve as a catalyst for public officials to begin other, continuing dialogues with public officials in their localities, regions, and states.



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During 2002, 18 national associations representing elected and appointed and public safety officials worked together on the National Task Force on Interoperability (NTFI) to develop the original foundation of this brochure for the U.S. Department of Justice AGILE Program. These associations included:

- Association of Public Safety Communications Officials International, Inc.
- International Association of Chiefs of Police
- International Association of Fire Chiefs
- International City/County Management Association
- Major Cities Chiefs
- Major County Sheriffs' Association
- National Association of Counties
- National Association of State Chief Information Officers
- National Association of State Telecommunications Directors
- National Conference of State Legislatures
- National Criminal Justice Association
- National Emergency Management Association
- National Governors Association
- National League of Cities
- National Public Safety Telecommunications Council
- National Sheriffs' Association
- The Council of State Governments
- The United States Conference of Mayors



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Appendix D:

“Operations Texas Talks” Brochure



“When They Can’t Talk Lives Are Lost”

“The inability of our public safety officials to readily communicate with one another threatens the public’s safety and often results in unnecessary loss of lives and property”¹

Objective: Provide consistent funding for ongoing development, maintenance, and capital replacement of interoperable communications systems for emergency first responders statewide, allowing them to talk within and across agencies and jurisdictions on demand, in real time, and when authorized.

More than 5,300 fire, police and emergency medical service agencies respond daily to emergency and life-threatening incidents throughout Texas. They often must rely on aging and/or proprietary communication systems that limit their ability to share vital information with other agencies on-scene. In many cases, public safety responders can’t even talk to their own people on the radio due to inadequate coverage within their areas of responsibility.

“Operable” voice radio communications ensure that first responders have access to radio communications systems that provide adequate coverage and features to meet their everyday communication requirements while performing the most basic elements of their jobs.

“Interoperable” voice radio communications allow public safety and service agencies (police, fire, EMS, not-for-profit non-governmental entities, public works, transportation, hospitals, etc.) to communicate across agencies and jurisdictions on demand, in real time, and when authorized. It means, in any multi-agency, multi-discipline emergency response, all are able to talk to one another by radio.

Texas Public Safety Radio Communications Problems

- ☑ Inadequate or no radio communications equipment for some agencies, thus no “operability”
- ☑ Inadequate or no radio coverage in some areas, thus no “operability”
- ☑ Aged and decaying radio towers and antenna systems
- ☑ Aged and outmoded radio systems, thus limited “operability”
- ☑ Dissimilar radio systems, thus limited “interoperability” with others
- ☑ Upcoming regulatory changes may cause some agencies with older technology systems to lose communications capabilities

Texas Public Safety Agencies need \$84-million per year in state funds, plus federal and local funds, over the next five years to achieve basic statewide interoperable communications to meet the State Communications Interoperability Plan (SCIP) stated goal of interoperability in 2015

Strategy: Create partnerships among public safety agencies throughout Texas to build and maintain a cost-effective interoperable communications network using shared resources. *Operation Texas Talks* proposes to use federal, state, and local funding to provide interoperable communications to state and local public safety agencies and emergency responders. (For more information, go to <http://txrc.region49.org>.)

Consequences of Doing Nothing:

- Citizens and property are at risk because emergency responders may be unable to communicate by radio to coordinate the most efficient and effective delivery of emergency services
- Safety of our emergency responders is at risk with inadequate voice communications capabilities
- Loss of grant funding due to inability of many jurisdictions to meet cash-match requirements without State assistance

¹ “When They Can’t Talk Lives Are Lost, What Public Officials Need to Know about Interoperability”, National Association of Counties (NACo)

http://www.naco.org/Template.cfm?Section=New_Technical_Assistance&template=/ContentManagement/ContentDisplay.cfm&ContentID=28702

Fact Sheet: OPERATION TEXAS TALKS

When critical incidents and disasters strike, effective response requires rapid coordination among all emergency first responders. *Without “operable” and “interoperable” communications,” a coordinated and effective emergency response is simply not possible.*

Citizens look to their elected and appointed officials to ensure that public safety agencies can respond effectively in a crisis. To provide effective operable and interoperable communications for emergency first responders across Texas, ***\$84-million per year in State funding will be required over the next five years to build and maintain a statewide “system of systems,” which is a network of local and regional public safety communication systems connected together to provide seamless “interoperability.”***

Frequently Asked Question: Why \$84-million per year in state funding?

- Many current radio systems and towers are 25-30 years old and can no longer be maintained. They must be replaced. Spending \$84-million per year for five years (\$420-million, plus \$393-million in anticipated federal grant funds) will provide a basic statewide “interoperable wireless communications” infrastructure (state and local agencies will have to fund the majority of their own mobile and portable radios).
- Lack of basic interoperability has forced first responders use runners to carry messages from one unit to another when responding to emergencies.
- Traffic accidents, missing children, fires, high speed chases, rescues, and chemical spills occur with frightening regularity and do not respect jurisdictional boundaries. When they occur in your community, will your agency responders be able to talk to one another?
- The ability, or the inability of first responders to effectively communicate in a timely manner can mean the difference between life and death.
- Citizens expect that their calls to 9-1-1 for help will bring emergency responders who can effectively work together to deal with their issues. Unfortunately, fire, police, and EMS often cannot talk to each other over the radio because their systems are not interoperable. Responding quickly and effectively to a 9-1-1 call is contingent upon the ability of responders being able to effectively communicate with each other by radio.
- Currently, many first responders often must juggle multiple radio units (if they have access to multiple radios) to talk across agencies and disciplines, because the police department's radio system is different from the sheriff's system, which is different from the fire department's system. This can slow response times and increase operational and maintenance costs for all.
- Systems that share infrastructure (towers, dispatch centers, etc.) and cover large areas are THE MOST EFFECTIVE USE OF TAXPAYER DOLLARS. Partnering and sharing radio system infrastructure LOWERS THE COST FOR PROVIDING INTEROPERABILITY between agencies.
- There is limited funding to replace or update communications equipment, which mandates that governments collaborate.
- Funding requirements for building and maintaining a statewide "system of systems" requires a coordinated effort and assistance from the State and Federal Governments.
- To be efficient and effective, the public safety community must be provided reliable communications equipment that will allow them to communicate with each other. This issue is too important to ignore and too big for any of us to solve individually. We must work together to ensure our public safety responders are adequately equipped to do their jobs. Texas will reap the benefits.

Appendix E:
DPS PowerPoint Presentation to
4th Annual Interoperable
Communications Statewide Strategic
Planning Session, 8/24/10



DPS Public Safety Communications Bureau

Interoperable Communications Background, Legislative Report and RICPs Round #2 With Timelines

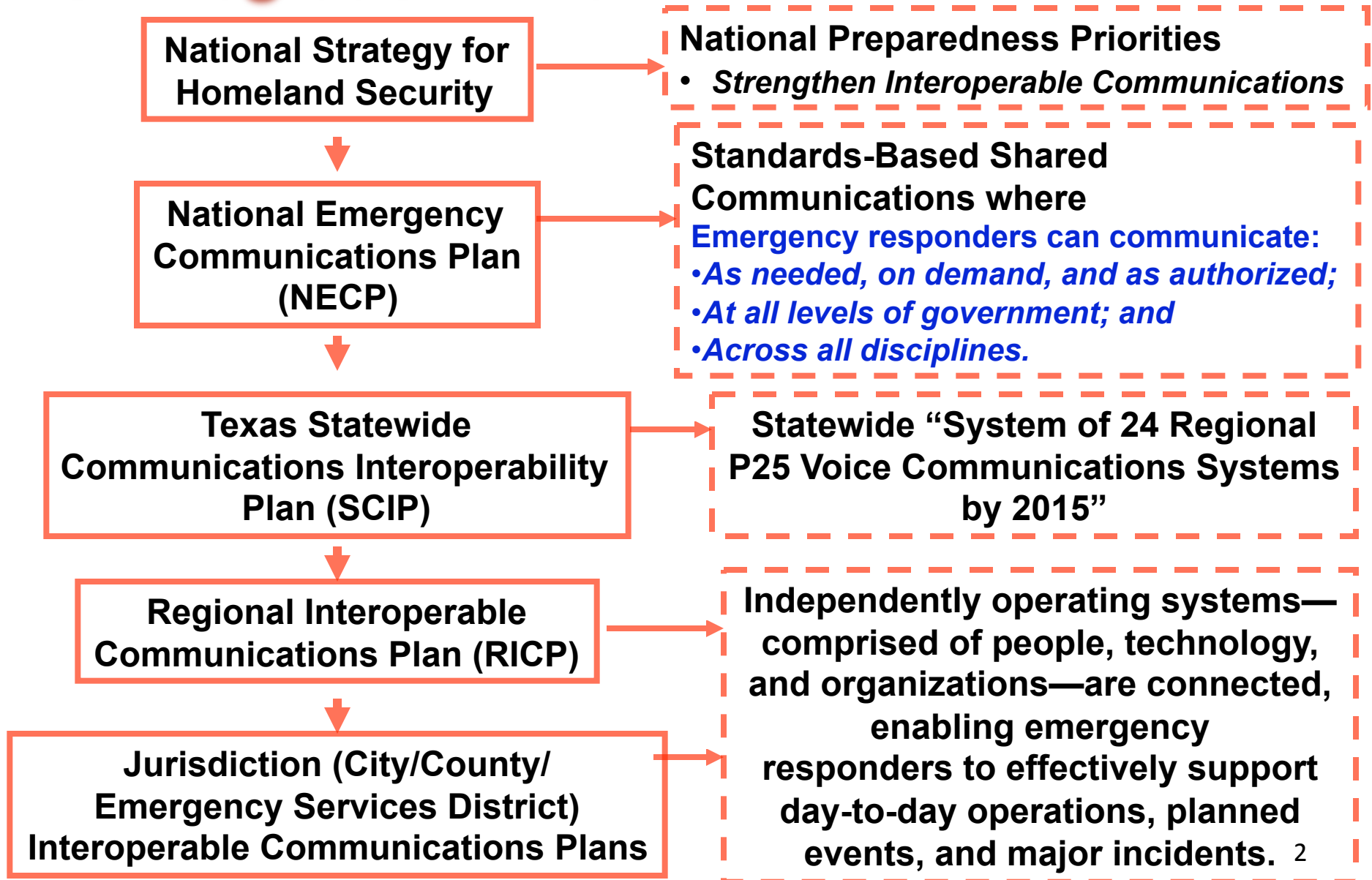
**Presented to the 4th Annual Texas Interoperable
Communications Statewide Strategic Planning Session**

*By Mike Simpson, Texas DPS Assistant Director -
Law Enforcement Support Division*

August 24, 2010

Strategies & Plans

Goals / Vision

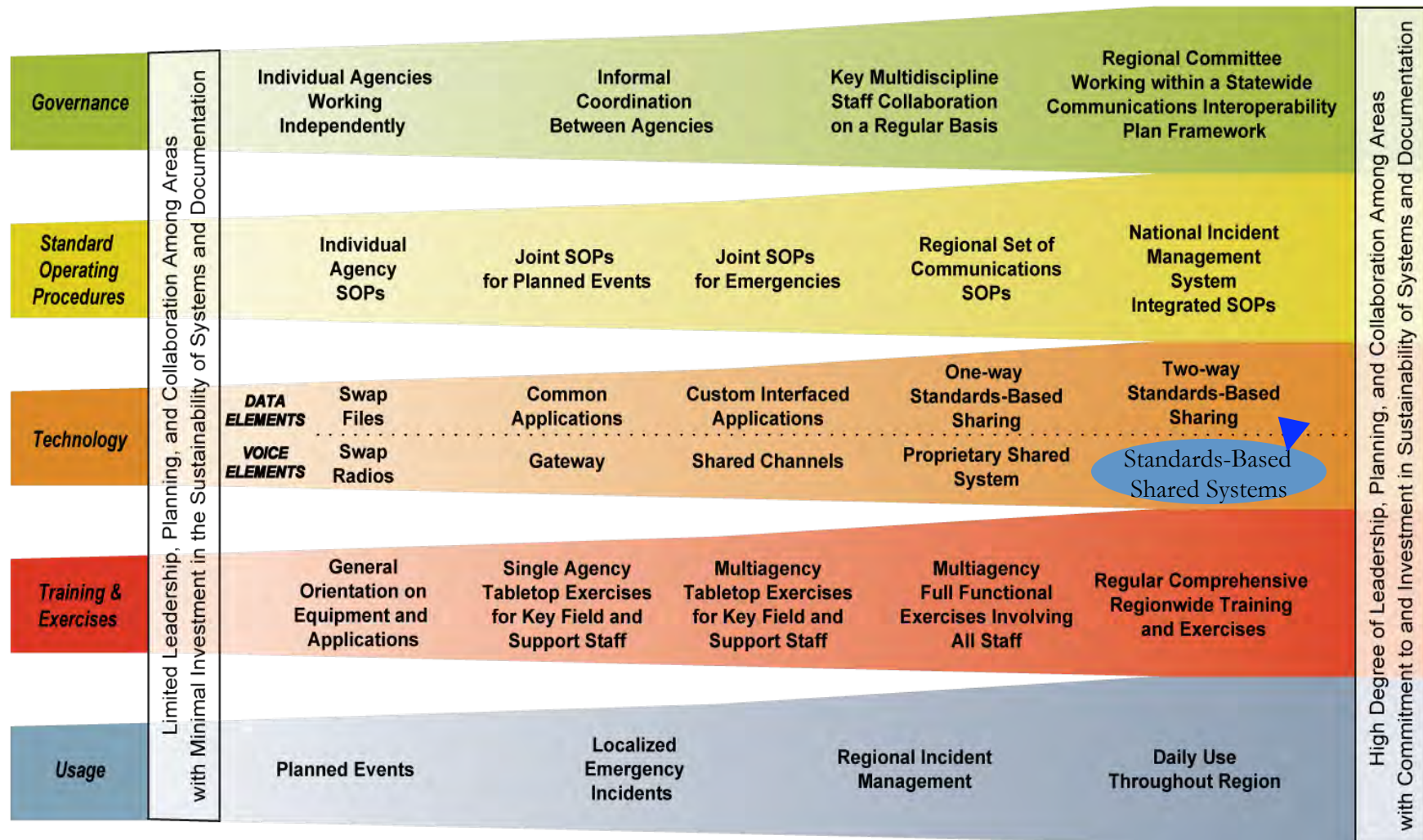




Interoperability Continuum

BEST

12/2008



Least Interoperable on Left - Most Interoperable on Right 3

Texas Statewide Communications Interoperability Maturity Model



Level 1 Minimal Interoperability (Swap Radios)

Governance
Individual Agencies Working Independently

SOP
Individual Agency SOPs

DATA Technology **VOICE Technology**
Swap Files Swap Radios

Training and Exercises
General Orientation on Equipment and Applications

Usage
Planned Events

Level 2 Limited Interoperability (Use of Gateways)

Governance
Informal Coordination Between Agencies

SOP
Joint SOPs for Planned Events

DATA Technology **VOICE Technology**
Common Applications Gateway

Training and Exercises
Single Agency Tabletop Exercises for Key field and Support Staff

Usage
Localized Emergency Incidents

Level 3 Mid-Range Interoperability (Use of Shared Channels)

Governance
Key Multi-Discipline Staff Collaboration on a Regular Basis

SOP
Joint SOPs for Emergencies

DATA Technology **VOICE Technology**
Custom Interfaced Applications Shared Channels

Training and Exercises
Multi-agency Tabletop Exercises for Key Field and Support Staff

Usage
Localized Emergency Incidents

Level 4 Improved Interoperability (Use of Proprietary Shared Systems)

Governance
Key Multi-Discipline Staff Collaboration on a Regular Basis

SOP
Regional Set of Communications SOPs

DATA Technology **VOICE Technology**
One-Way Standards-Based Sharing Proprietary Shared System

Training and Exercises
Multi-agency Full Functional Exercises Involving All Staff

Usage
Regional Incident Management

Level 5 - Full Interoperability (P25 Standards-Based, Shared Systems)

Governance
Regional Committee Working within a Statewide Communications Interoperability Plan Framework

SOP
National Incident Management System Integrated SOPs

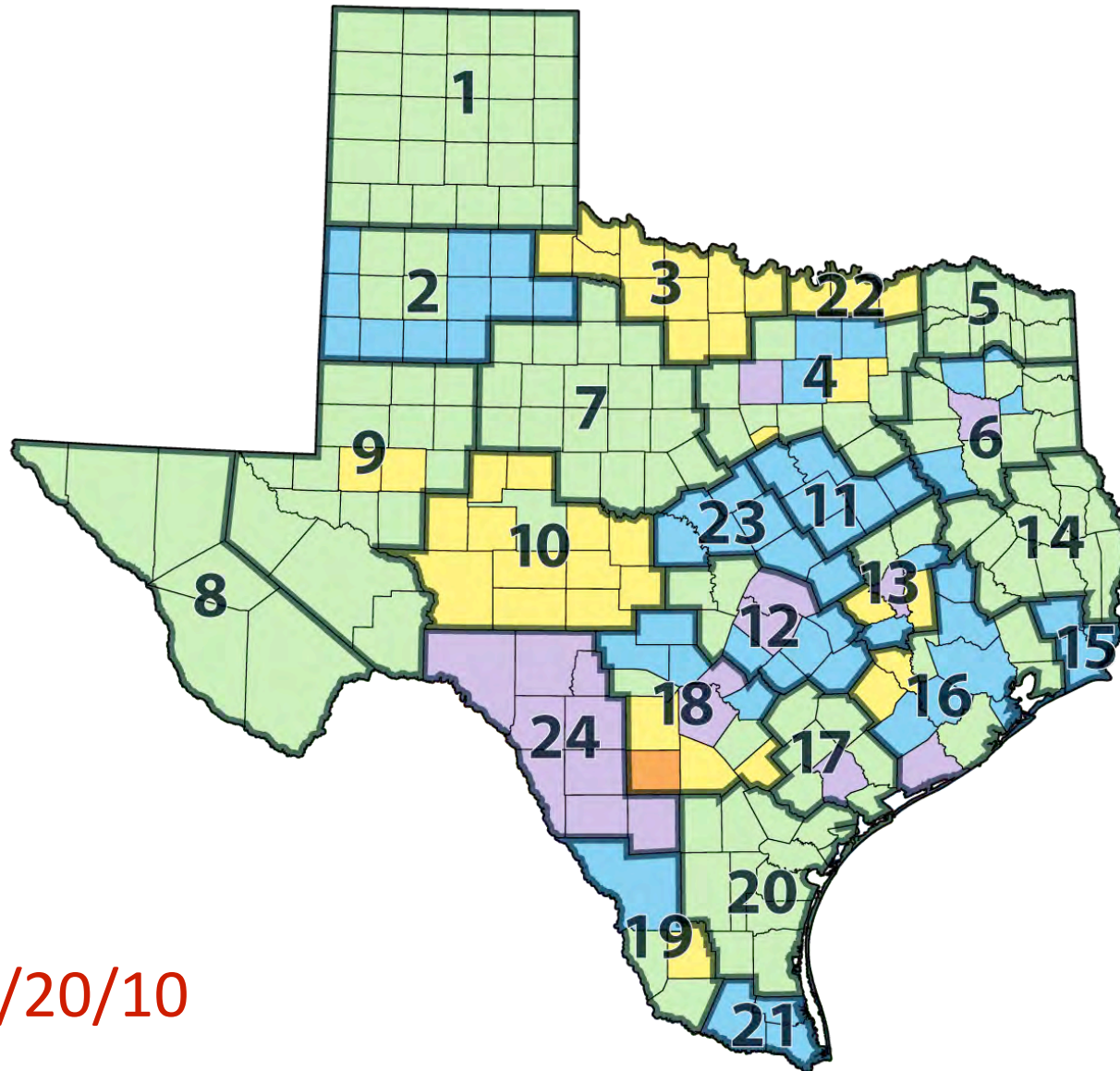
DATA Technology **VOICE Technology**
Two-Way Standards-Based Sharing Standards-Based Shared Systems

Training and Exercises
Regular Comprehensive Region wide Training and Exercises

Usage
Daily Use Throughout Region

County / COG Interoperability Levels

(See Levels #1 through #5 Color Explanations on Preceding Page)



AS OF 8/20/10

ILLUSTRATION OF TEXAS STATEWIDE COMMUNICATIONS INTEROPERABILITY GOAL

Region 1 of 24

All Public Safety Agencies within the COG move to P25 standard by end of 2015

VHF P25
Conventional



700/800 MHz
P25 Trunked



▽
Requires Master Gateway
▲ for Interoperability

700/800 MHz P25
Conventional



VHF P25
Trunked

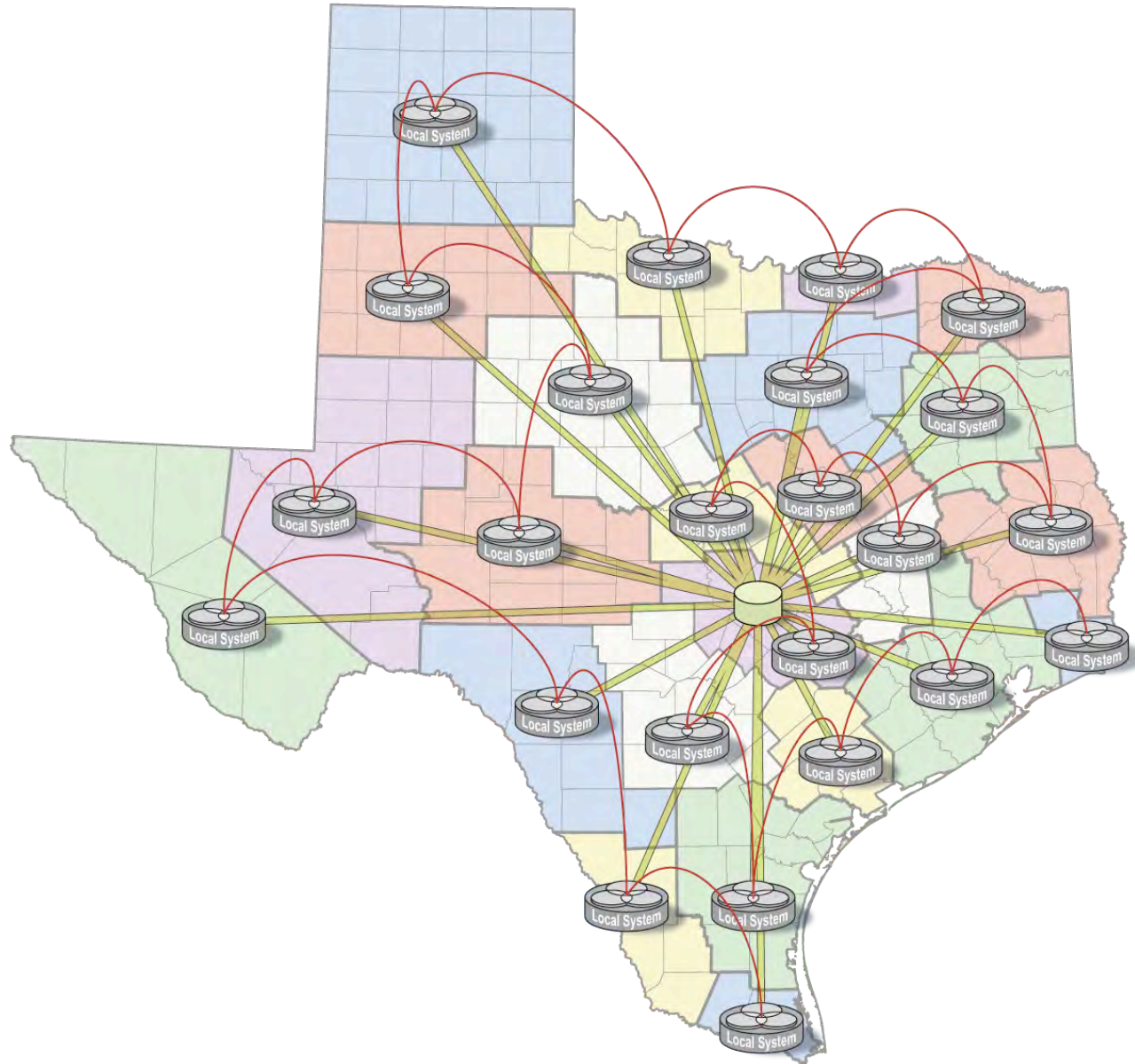


Multiple backhaul paths for
connectivity between regions:
Microwave, Leased T-1's
Fiber and NG 9-1-1 Broadband

Twenty Three Additional Regions



Texas “System of Systems” Approach



Situation (Problem Statement)

The Texas State Senate Finance Committee is interested in the status of the state's communications interoperability and wants to gain a clear understanding of:

- Interoperable communications plan for the state
- Current status on implementation
- Future requirements
- Next steps
- Budgetary issues associated with this process (what funds from what sources have been expended to date, and what funds are required to achieve desired state by when)

DPS is assuming responsibility for statewide interoperable communications and must develop an updated, detailed strategic plan for enhancing interoperable communications throughout TX

Requirements/ General Tasks

- Meet Federal and State standards as set forth in the National Emergency Communications Plan (NECP), approved Texas State Communications Interoperability Plan (SCIP), Texas Regional Interoperable Communications Plans (RICPs), APCO P25 digital radio communications suite of standards, and user needs
- Integrate existing and future programs for development, maintenance and capital replacement of interoperable communications
- Understand all current and potential grants/funding sources and limitations (federal grants award through DPS and CJD, federal grants directly to local jurisdictions, and local funds including operational budgets along with bond monies used for interop communications)

Requirements/ General Tasks

- Clarify and fine-tune governance structure to manage the State's interoperable communications efforts
- Develop interagency efficiencies, to include sustainment/O&M, where possible
- Display key interoperable communications information via TxMAP (CASM data)

Tasks, Deliverables, and Timeline

1. June 15, 2010 – Desired date for DPS Management Approval of using grant funding to perform Statewide Communications Interoperability Study and SCIP revision
2. June 16, 2010 – Internal DPS Interoperable Communications Study Working Group (DISWG) organizational meeting
3. June 16, 2010 – Briefing to State Auditor's Office on interoperability
4. June 22, 2010 – DISWG meets again, but with added external contractors (DISWG Team will meeting every Wednesday from 10 am-12-noon)
5. June 30, 2010 (and every quarter thereafter) – Submit 3rd Quarter FY-2010 Agency Interoperability Status Report to LBB and Governor (Requirement stated in Texas GAA, Article IX, 81st Legislature, 2009)

Tasks, Deliverables, and Timeline (Continued)

6. July 12, TxRC Steering Committee Meeting to review planned agenda items for Strategic Planning Session
7. Aug. 24, 2010 – Annual SCIP Strategic Planning Session in Austin with COG and State Agency Reps
8. Aug. 30, 2010 – Complete final draft of SCIP Implementation Report for DHS-OEC
9. Aug. 31, 2010 – Provide needed information for the report to Legislature on status of interop duties (Requirement in Government Code Section 421.098 that the Office of the Governor is to provide a report to the Legislature by September 1 of each year on the status of its duties related to interoperability) – this can basically be the SCIP Implementation Report mentioned above

Tasks, Deliverables, and Timeline (Continued)

- 10 Aug. 31, 2010 – DPS provides Senate Finance Cmte. (& other Cmte's.) on status of DPS 2010 Statewide Communications Interoperability Study, with information developed to date
11. Oct. 27, 2010 – TxRC Steering Committee approves revised SCIP and DPS Statewide Communications Interoperability Study findings
12. Nov. 17, 2010 – Governor's Statewide Communications Interoperability Executive Committee approves revised SCIP and DPS Statewide Communications Interoperability Study findings
13. Dec. 1, 2010 – Revised SCIP and DPS Statewide Communications Interoperability Study Findings forwarded to the Governor

Tasks, Deliverables, and Timeline (Continued)

14. June 30, 2011 – Final Drafts of Revised Regional Interoperable Communications Plans (RICPs) are submitted by the COGs to the Statewide Communications Interoperability Coordinator (SWIC), with enhanced sections on statewide Public Safety Agency Needs Assessments/ Requirements, Conceptual Systems Designs, Estimated Budget Details on achieving P25 Standards Based, Shared Systems interoperability by the end of 2015 ***(NOTE: A preliminary draft due date will be 3/31/11. This will allow time for review prior to the 6/30/11 final submission deadline date.)***

REVISED RICPs By 6/30/11 (Drafts Due 3/31/11)

TO INCLUDE:

- 1) Basic Needs Assessment/Requirements Document for each public safety agency within the COG
 - ◆ *Existing Communications Facilities (Towers and Shelters, Microwave, Fiber, etc.)*
 - ◆ *Dispatch Centers*
 - ◆ *Summary of Communications Problems & Needs*

REVISED RICPs By 6/30/11 (Drafts Due 3/31/11)

- 2) Conceptual System Design (to meet the P25 Standard by the end of 2015)

Design Alternatives & Recommendations:

◆ *Technological & Regulatory Considerations*

- Frequency Band
- Licensing Issues
- Mode of Operation
- Wide Area Technology

REVISED RICPs By 6/30/11 (Drafts Due 3/31/11)

- Digital Radio Characteristics (P25)
- Shared City/County/ COG System(s)
- Dispatching Considerations
- Wide Area Technology

REVISED RICPs By 6/30/11 (Drafts Due 3/31/11)

◆ *Design Features & Recommended Approach:*

- System Reliability
- Interoperability
- Encryption
- Telephone Interconnect?
- Growth Flexibility
- Automatic Vehicle Location
- Emergency Features

REVISED RICPs By 6/30/11

(Drafts Due 3/31/11)

- ◆ *(Design Features & Recommended Approach Continued)*
 - Specialized Equipment
 - Equipment Standardization
 - Channel Scan
 - Unit ID
 - Improved Audio Quality
 - New Equipment
 - Paging & Alert Systems

REVISED RICPs By 6/30/11 (Drafts Due 3/31/11)

The Actual Design Document:

- ◆ *Radio Coverage Requirements*
- ◆ *Repeater Sites*
- ◆ *System Capacity*
- ◆ *System Architecture*
- ◆ *Dispatch Center Configuration*

REVISED RICPs By 6/30/11 (Drafts Due 3/31/11)

3) Budgetary Estimates

- ◆ *Infrastructure Pricing by Site*

- ◆ *Subscriber Pricing by Agency*

4) Hiring of a Consultant to do Tasks Above, Do it In-House, or a Combination Thereof? Updating of Existing Study? MOU funds to DPS to Help You Do It?

REVISED RICPs By 6/30/11
(Drafts Due 3/31/11)

What do you do if your public safety agencies won't come to the meetings or cooperate?

REVISED RICPs By 6/30/11

Statewide RICP Round #2

*Workshop in Austin 9/28th,
29th or 30th – 9 am-4pm (exact
date & location pending)*

*Bring your consultants and radio
vendors, if already selected*

REVISED RICPs By 6/30/11
(Drafts Due 3/31/10)

DPS Technical Assistance Unit

DPSTEchnical.assistance@txdps.state.tx.us

(512) 424-7134

Interoperable Communications Internet Links

Texas Radio Coalition web site for more information,
including the Texas Statewide Communications Interoperability Plan (SCIP):

<http://txrc.region49.org>

Texas Statewide Communications Interoperability Channel Plan (TSCIP):

<http://tsiec.region49.org/MOU+TSICP.pdf>

National Emergency Communications Plan:

http://www.dhs.gov/xlibrary/assets/national_emergency_communications_plan.pdf

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Appendix F:
Texas Statewide Communications
Interoperability Plan (SCIP)
*Plan Refreshed at the 4th Annual
Interoperable Communications Statewide
Strategic Planning Session 8/24/10*



Texas Statewide Communications Interoperability Plan

August 2010



Record of Change

Change No.	Date	Description	Change Date	Signature
Draft	10-29-07	Tables and text changes	10-29-07	TxRC Committee
Draft	10-30-07	Standards: pp 72-74	10-30-07	Mike Simpson
Draft	11-01-07	TxRC Organization Chart	11-01-07	Chuck Brotherton
Draft	11/12-07	Funding Tables 9 – 14	11/12/07	Chuck Brotherton
Draft	11/25/07	Executive Committee	11/25/07	Mike Simpson
Version 1	11/30/07	SCIP FY 2008-2010	11/30/07	Carol Sutherland
Version 1.1	1/9/08	Minor text changes	1/9/08	Carol Sutherland
Version 1.2	7/8/08	Section 2.3 Statewide Plan Point of Contact	7/8/08	Carol Sutherland
Version 1.2	7/8/08	Section 2.4 Scope and Timeframe ... Milestones	7/8/08	Carol Sutherland
Version 1.2	7/8/08	Section 4.3.2 The Process to Develop, Manage, Maintain, Upgrade and Communicate SOPs	7/8/08	Carol Sutherland
Version 1.2	7/8/08	Section 6.3 ... Short-Term Initiatives: Initiatives #1, #5 & #6	7/8/08	Carol Sutherland
Version 1.2	7/8/08	Section 6.4 Eligibility for State and Federal Grant Funds	7/8/08	Carol Sutherland
Version 1.2	7/8/08	Section 6.6 Identifying, Developing, and Overseeing Operational Requirements, SOPs, Training, Technical Solutions, and Short- and Long-Term Funding Sources	7/8/08	Carol Sutherland
Version 1.3	8/10/09	<ul style="list-style-type: none"> - Repaired various links, made minor corrections to document titles such as replacing "Texas Interoperability Channel Plan" with "Texas Statewide Interoperability Channel Plan" throughout the SCIP document (17 replacements). - Deleted Table 6 – Texas Interoperability Channels, renumbered subsequent tables. - Updated Appendix D, SCIP Distribution List. - Updated Section 2.3 – Statewide Plan Point of Contact - Updated Table 5 – TxRC Executive Committee List - Updated Section 6.1 – POC for Plan Implementation 	8/10/09	Chuck Brotherton
Version 1.4	1/29/10	<ul style="list-style-type: none"> - Update Section 5.3, Goals and Objectives - Update Section 5.4, Strategic Initiatives - Update Section 6.3 - Update Table of Contents - Update List of Tables - Update hyperlinks 	1/29/10	Carol Sutherland
Version 1.5	8/25/10	<ul style="list-style-type: none"> - General technical editing clean-up - Updated Interoperability Continuum with new version Section 5 - Updated Vision Statement Section 5.1 	8/25/10	Carol Sutherland

List of Acronyms	
Item/Acronym	Definition
APCO	Association of Public Safety Communications Officials
ARC	American Red Cross
BZPP	Buffer Zone Protection Plan
CASM	Communications Asset Survey and Mapping
CI	Critical Infrastructure
COG	Council of Governments
COWs	Cells/Channels on Wheels
DDC	Disaster District Committee
DFW	Dallas Fort Worth
DHS	Department of Homeland Security
DPS	Department of Public Safety
EOC	Emergency Operations Center
EMS	Emergency Medical Services
ETMC	East Texas Medical Center
FCC	Federal Communications Commission
GJXDM	Global Justice XML Data Model
IACP	International Association of Chiefs of Police
ICTAP	Interoperable Communications Tactical Assistance Program
ICS	Incident Command System
IP	Internet Protocol
JOC	Joint Operations Center
KR	Key Resources
LCRA	Lower Colorado River Authority
LETPP	Law Enforcement Terrorism Prevention Program
LMR	Land Mobile Radio
MHz	Megahertz
MOU	Memorandum of Understanding
NIMS	National Incident Management System
NPSPAC	National Public Safety Planning Advisory Committee
OEM	Office of Emergency Management
P25	Project 25 (formerly APCO Project 25)
POC	Point of Contact
PSAP	Public Safety Answering Point
PSIC	Public Safety Interoperable Communications
RACES	Radio Amateur Civil Emergency Service
RECIM	Regional Emergency Communications Information sharing
RFI	Request for Information
RFP	Request for Proposal
RMS	Records Management System
SCIP	Statewide Communications Interoperability Plan
SHSP	State Homeland Security Program
SIPRNET	Secret Internet Protocol Router
SME	Subject Matter Expert
SOC	State Operations Center
SOI	Standard Operating Instructions

SOP	Standard Operating Procedures
STR	Strategic Technology Reserve
TARC	Texas Association of Regional Councils
TCLEOSE	Texas Commission on Law Officer Standards and Education
TDEM	Texas Division of Emergency Management
TEEX	Texas A&M Engineering Extension
TFS	Texas Forest Service
TIC	Texas Interoperability Coordinator
TICP	Tactical Interoperable Communications Plan
TRCIP	Texas Radio Communications Interoperability Plan
TSA	Salvation Army
TSICP	Texas Statewide Interoperability Channel Plan
TSIEC	Texas State Interoperability Executive Committee
TVE	Tactical Validation Exercise
TXMF	Texas Military Forces
TxRC	Texas Radio Coalition
UASI	Urban Area Security Initiative
UHF	Ultra High Frequency
VHF	Very High Frequency
XML	eXtensible Markup Language

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1 Introduction

The Vision of the Texas Homeland Security Plan is to “*Optimally position Texas to prevent acts of terrorism, protect critical infrastructures and key resources, and respond to and recover from all disasters.*” A priority action of the Texas Homeland Security Plan is to “*establish a statewide network of interoperable radio systems.*”

Figure 1, the “Texas Road Map to Communications Interoperability,” illustrates the planning and development of the Texas Statewide Communications Interoperability Plan (SCIP). This process started with the Texas Radio Communications Interoperability Plan (TRCIP), the Texas Statewide Interoperability Channel Plan and the SAFECOM SCIP Methodology. The SCIP is built around:

- The National Priorities
- The National Incident Management System (NIMS)
- The new National Preparedness Guidelines and Target Capabilities List (TCL)
- The concerns identified in 27 focus group sessions across Texas
- The initiatives prioritized in a Statewide Strategic Planning Session

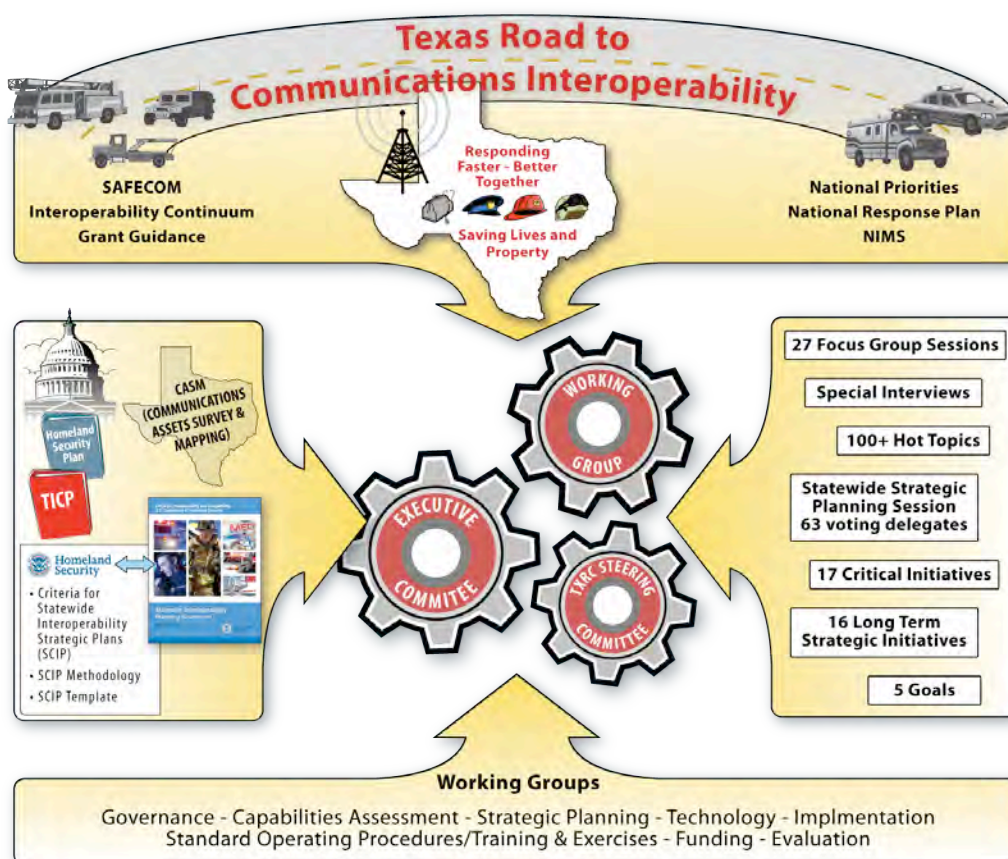


Figure 1 - Texas Road Map to Communications Interoperability

The Texas SCIP Governance committees, which are comprised of the Texas Radio Coalition (TxRC) Executive Committee, the TxRC Steering Committee, and the TxRC Working Groups, planned and facilitated 27 focus group sessions across the state, conducted research and data collection, and developed the SCIP.

The TxRC is a voluntary association of representatives from local, state, tribal, and Federal government agencies and response organizations, or their representatives. Current participants include representatives from local governments and emergency response organizations across Texas. The complete membership list is located on the TxRC Web site at <http://txrc.region49.org/>. The TxRC does not endorse any specific radio communications equipment or products.

Texas has 24 state planning regions (designated as regional planning commissions, councils of governments, or development councils). Each planning region has a state regional emergency management organization, designated as a Disaster District, which is coordinated by the Texas Department of Public Safety.

During the 27 regional focus group sessions conducted throughout the state, public safety agencies were asked strategic questions regarding their current communications capabilities based on specific elements of the SAFECOM Interoperability Continuum. The survey questions are listed in Table 1.

Table 1 - Survey Questions on Public Safety Communications.

- | |
|---|
| <ol style="list-style-type: none">1. Does your radio system have the capacity and coverage you need to perform your job effectively?2. Do your public safety agencies have the ability to talk on the Texas Interoperability channels through your dispatch center or a mobile command vehicle?3. a) Have you identified the technology and equipment needed to provide your public safety agencies with communications interoperability?3. b) Do your public safety agencies have the necessary funding and/or a plan to acquire funding to meet your communication needs?4. a) Have the NIMS requirements been incorporated into your SOPs?4. b) Has a NIMS-certified Communications Unit Leader been identified?4. c) Do you have regular and realistic exercises that address potential problems in the region and involve the participation of all personnel?5. Is your interoperable system used every day for managing routine calls as well as emergency incidents? |
|---|

Representatives of public safety agencies operating within the region's jurisdictions completed regional surveys. Each regional focus group discussed the questions and answers, with either YES or NO serving as the best representation of regional communications capabilities. Some focus groups chose to respond by county, some chose not to respond to a few questions, and some groups gave specific detailed

responses to each question. Each focus group's responses were reviewed and grouped. The results of this basic survey highlighted communication gaps that must be addressed. Survey results indicated that, of the 24 Texas regions:

- Some public safety agencies in 12 regions do not have the capacity and coverage needed to perform their job effectively
- Some public safety agencies in seven regions do not have the ability to talk on the Texas Interoperability Channels through radio dispatch or a mobile communications vehicle
- Some public safety agencies in 10 regions have only recently begun conducting communications exercises
- Twenty regions currently do not have funding to overcome these identified gaps in communications operability and interoperability

More information on the Focus Group Sessions can be found in Section 3, "Methodology."

1.1 National Preparedness Guidelines

Within disciplines and jurisdictions, communications is the fundamental capability that practitioners need to perform the most routine and basic elements of their job functions. Agencies must be operable, meaning they must have sufficient wireless communications to meet their everyday internal and emergency communication requirements before they place value on being interoperable, i.e., able to work with other agencies. Communications interoperability is the ability of public safety agencies (e.g., police, fire, Emergency Medical Services [EMS]) and service agencies (e.g., public works, transportation, hospitals) to talk within and across agencies and jurisdictions via radio and associated communications systems, exchanging voice, data and/or video with one another on demand, in real time, when needed, and when authorized. It is essential that public safety has the intra-agency operability it needs, and that it builds future systems toward interoperability. (More information on the TCL can be found at <https://www.llis.dhs.gov/getFile.cfm?id=26724>. Member registration is required.)

Below are three priorities identified in the National Preparedness Guidelines, which serve as focal points woven throughout the Texas SCIP:

- Expand regional collaboration
- Strengthen information sharing and collaboration capabilities
- Strengthen communications capabilities

"The unique needs of each community determine how to best address needs in light of the risks, and thereby achieve optimal and *reasonable levels of preparedness*."¹

¹ National Preparedness Guidelines, September 2007, page 2.

Interoperable communications is a National Priority: Interoperable and operable communications capabilities are developed to target levels in the states, tribal areas, territories, and designated urban areas that are consistent with measures and metrics established in the TCL.

It is the goal of the governor, all public safety agencies in Texas, and the TxRC that emergency responders have direct and seamless communications by 2015. However, improving safety for each of the men and women who respond to the call for help on a daily basis is our greatest purpose.

2 Background

In 2005, Texas adopted the SAFECOM Interoperability Continuum as a tool to develop the Texas Radio Communications Interoperability Plan (TRCIP). The Texas Statewide Interoperability Channel Plan and a Channel Plan Memorandum of Understanding (MOU) supplemented the TRCIP. The Channel Plan MOU establishes permissions and guidelines for the use of the designated interoperable/mutual aid radio channels. Signatories to the MOU include state, local, tribal and Federal jurisdictions, and non-governmental organizations such as the American Red Cross, the Texas Salvation Army, state utility agencies, non-profit EMS organizations and numerous volunteer fire departments. Presently, more than 1,400 MOUs have been signed by individual agencies and/or cities and counties (some city and county MOUs are inclusive of all agencies within the jurisdiction) ranging from the Abilene Police Department to the Zephyr Volunteer Fire Department. The 24 state planning regions and three U.S. Department of Homeland Security (DHS)-designated Urban Areas (UAs) were required to develop regional Tactical Interoperable Communications Plans (TICPs) to implement the TRCIP and the Texas Statewide Interoperability Channel Plan. Where applicable, these plans covered both voice and data interoperability. The state's initial goal was to establish a minimum level of communications interoperability through gateways, Internet Protocol (IP) network switches and these shared channels in all 24 planning regions in Texas by 2007. Most regions and UAs have achieved tactical voice interoperability using the designated shared channels and gateways, and data/video interoperability with IP network switches and shared software. Tactical interoperability is being tested in all regions through state-sponsored tactical interoperable communications exercises. The TRCIP, Texas Statewide Interoperability Channel Plan, and the Channel Plan MOU can be found via the "Links" button at the TxRC statewide planning Web site: <http://txrc.region49.org/>.

On May 24, 2007, the Texas Director of Homeland Security officially requested that the TxRC update the State of Texas Radio Communications Interoperability Plan according to the criteria established by SAFECOM for SCIPs. The first step in this process was to do a preliminary assessment (survey) of public safety assets and capabilities. The TxRC and the Texas Association of Regional Councils (TARC) asked public safety agencies throughout the state to complete a Communications Capabilities and Assets Survey. More than 1,000 surveys were received from responders representing a wide

variety of agencies and organizations — an urban police department serving 3 million people; a volunteer fire department serving a population of less than 100; a utility company providing electricity, water, and wastewater services in 58 counties; and an EMS organization serving 14 hospitals with 12 regional trauma centers in 15 counties.

Please see Section 3 - Methodology for the complete chronicle of the SCIP creation.

2.1 State Overview



TEXAS

With an area of 268,601 square miles and a population of almost 25 million, Texas is the second-largest state in both area (behind Alaska) and population (behind California). The highest elevation point is the Guadalupe Peak at 8,749 feet, and the lowest is the Gulf of Mexico at sea level. Texas is internationally known for its energy and aeronautics industries, and for the Port of Houston ship channel – the

This vast state includes many local and regional governments with widely differing public safety capabilities, including:

- 254 counties
 - The most populous county has more than three million residents.
 - The least populated county has 60 residents and is the most sparsely populated county in the U.S.
- 1,206 incorporated cities
 - Three of the 10 most populous cities in the United States.
 - 83 percent of Texas cities have a population less than 5,000.
- Five DHS-designated UAs
 - Tier 1 urban areas: Houston and Dallas/Fort Worth/Arlington (these three areas operate as a single metro urban area)
 - Three Tier II urban areas: El Paso, San Antonio, and Austin
- Three tribal nations

- 24 state planning regions established in state law and a like number of regional emergency management organizations known as Disaster Districts whose boundaries are coterminous.
- More than 5,300 public safety agencies and organizations, both career and volunteer, that include state, local and Federal agencies, tribes, commercial and non-profit agencies, and utility companies and medical trauma centers.

Table 2 shows the number of agencies by category. This list is not all-inclusive, as many tribes, commercial agencies, parks, nonprofit hospitals, EMS organizations, and public utility companies have staff or contract public safety personnel. (The Texas Division of Emergency Management [TDEM], the Texas Police Chiefs Association, the Texas Fire Marshal's Office, the Texas Department of State Health Services and the U.S. Census Bureau and Capitol Impact.com provided the information in Table 2).

Table 2 - Texas Jurisdictions and Public Safety Agencies

254	Texas Counties
1,206	Incorporated Cities
254	Sheriffs' Offices
254	County Emergency Management Directors or Coordinators
464	Municipal Police Departments
823	Special Law Enforcement Agencies (Tribal Law Enforcement, Constables, Airports, ISD's, Colleges/Universities, Fire Marshals)
2,058	Career and Volunteer Fire Departments
850	EMS Provider Organizations
125	Designated Trauma Facilities
34	State Public Safety Agencies

The call volume for EMS providers in 2003 was 925,000 calls. For the past eight to 10 years, the call volume has increased approximately 5 percent per year. A conservative estimate of the 2006 call volume would be 1,070,803 calls.²

In 2005, Texas Law Enforcement Agencies responded to 1,110,326 emergency calls. These calls included murder, rape, robbery, aggravated assault burglary, larceny-theft and motor vehicle theft.³

² Texas Department of State Health Services <http://www.dshs.state.tx.us/emstraumasystems/formsresources.shtm>

³ Texas Department of Public Safety Crime Records Service, The Texas Crime Report for 2005. http://www.txdps.state.tx.us/administration/crime_records/pages/crimestatistics.htm#2005

That same year, career and volunteer fire departments statewide reported and responded to a total of 93,914 fires (which averages to one fire every six minutes), which caused 147 civilian fire deaths and 734 civilian fire injuries. 8,169 were categorized as incendiary/suspicious fires. The fire statistical incident information is collected and submitted by all participating fire departments; participation is voluntary and not all fire incident information is complete. Only 985 (less than half) fire departments participated in incident reporting in 2005.⁴

2.1.1 NIMS and Multi-Agency Coordination Systems (MACS)

TDEM has implemented a well-developed Multi-Agency Coordination System (MACS) that is compliant with NIMS and the National Response Plan. An overview of MACS is outlined below and is summarized as “call often and call early.”

- The first responder on the scene becomes the local Incident Commander (IC) and remains IC until an IC with more experience and expertise replaces him or her, or if the incident operational period exceeds 12 hours.
- If needed, the IC may call for additional resources from other disciplines within the jurisdiction and/or other jurisdictions including adjacent cities or county.
- If needed, the IC may contact the city and/or county Emergency Manager to open the Emergency Operations Center (EOC); at this point the Emergency Manager will notify the Chief Elected Official and the Department of Public Safety (DPS) Regional Liaison Officer (RLO). The RLO is the emergency management link between the state government, city and county governments and non-governmental organizations.
- If additional and/or special resources are still needed, the Emergency Manager makes a formal request to the Disaster District Chair (DDC) for state resources.
- The DDC may contact the State Operations Center (SOC) for additional state-level action if necessary.

To be eligible for Homeland Security Grants, all local governments and state agencies were required to adopt and implement NIMS procedures by September 30, 2006. Use of an Incident Command System (ICS), compliant with NIMS, is required for use of any regional interoperability resource. (Also see Section 5.5 NIMS Compliance.)

Figure 2, “Channels for Requesting Operational Assistance,” provides a graphical depiction of how MACS is implemented in Texas. More details on MACS and Incident Command implementation is provided in Sections 2.1.1.1 through 2.1.1.3.

⁴ Texas Fire Incident Reporting System 2005 Fire Statistics; <http://www.tdi.state.tx.us/fire/fmtexfir.html>

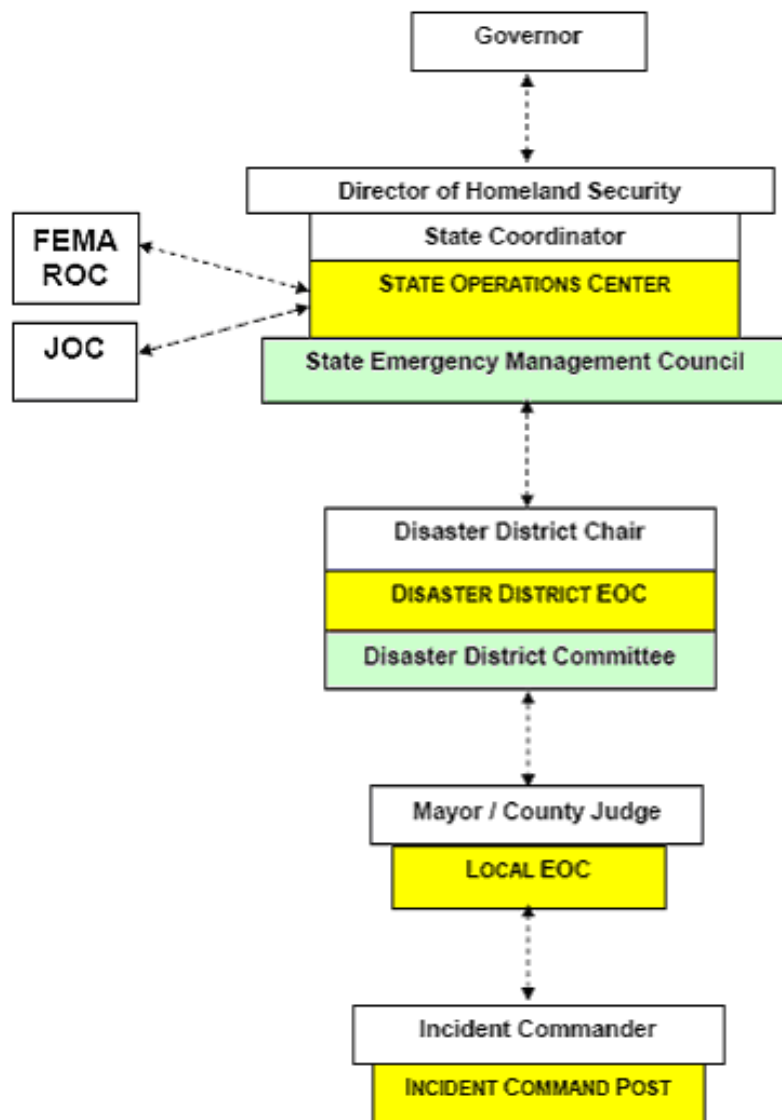


Figure 2 - Channels for Requesting Operational Assistance

Local emergency management and homeland security organizations may be organized at the city level, at the county level, or as an inter-jurisdictional program that includes one or more counties and multiple cities. Most local governments have an EOC staffed by members of its various departments that is activated to manage the response to major threats and incidents and coordinate internal and external resource support. Some local governments have an alternate or mobile EOC as well. *An IC typically directs the on-scene responses by local responders from a field command post set-up at or near the incident site.* Responders from other jurisdictions, along with state and Federal responders that have been called on to assist when local resources are inadequate, are integrated into the local incident command system.

- ◆ *The IC, or designee, shall determine when a situation exists that requires use of a regional interoperability resource and notify his/her dispatch center.*
- ◆ *The dispatch center having jurisdiction over the incident follows internal agency standard operating procedures (SOPs) to contact specific agencies requested by the IC. The Agency providing the requested resource will follow its standard operating procedures pertaining to notifications and call-ups.*

2.1.1.1 Disaster Districts

Disaster Districts are the state's regional emergency management organizations that serve as the initial source of state emergency assistance for local governments. A Chairman, who is the local Texas Highway Patrol commander, directs Disaster District operations. A Disaster District Committee, which consists of state agencies and volunteer groups that have resources within the District's area of responsibility, assists the Chairman in identifying, mobilizing, and deploying personnel, equipment, supplies, and technical support in response to requests for emergency assistance from local governments and state agencies. Disaster District chairs may activate and commit all state resources in their area of responsibility to aid requesters, except that activation of the National Guard or State Guard requires prior approval by the governor.

State resources that are committed to assist local governments normally work under the general direction of the Disaster District Chair and take specific task assignments from the local IC. If the resources of a Disaster District are inadequate to provide the type or quantity of assistance needed, the request for assistance is forwarded to the SOC for state-level action.

Legislation enacted during the 80th Session of the 2007 Texas Legislature realigned Disaster District/State Planning Regions boundaries to coincide with the boundaries of the 24 State Planning Regions/Councils of Governments. Additional information on the State Planning Regions can be found in Section 2.1.2 Regions/Jurisdictions.

2.1.1.2 The State Operations Center (SOC)

The SOC is operated by TDEM and serves as the state warning point. The SOC uses an extensive suite of communications to receive and disseminate threat warnings to regional warning points, local, tribal, state, and Federal officials, and non-governmental agencies; to monitor emergency situations throughout the state; to provide information on these events to local, state, and Federal officials; and to coordinate state assistance to local governments that are dealing with emergencies. The suite of communications at the SOC includes:

- Video Teleconference System (VTC) to all Disaster District EOCs
- Texas Warning System (TEWAS), a direct push-to-talk landline system to all National Weather Service Offices, DPS Communications Facilities, and the National Warning Center
- Satellite Radio System

- Satellite Telephone System
- Computer Aided Dispatch (CAD) system with connectivity to TLETS/NLETS for Message Distribution
- State Radio Amateur Civil Emergency Services (RACES) and Military Auxiliary Radio Service (MARS) Radio Networks with high frequency (HF)/ very high frequency (VHF)/ ultra high frequency (UHF) amateur bands
- WebEOC management software

The SOC coordinates more than 5,000 emergency incidents per year. The SOC is housed in an underground bunker three stories below ground level at the Texas Department of Public Safety Headquarters in north-central Austin.

2.1.1.3 The State Emergency Management Council

The Emergency Management Council is composed of 34 state agencies, the American Red Cross (ARC), and the Salvation Army (TSA). State law established the Council to advise and assist the governor in all matters relating to disaster mitigation, emergency preparedness, disaster response and recovery. During major emergencies, Council representatives convene at the SOC to provide advice on and assistance with response operations, and to coordinate the activation and deployment of state resources to respond to the emergency. Generally, state resources are deployed to assist local governments that have requested assistance because their own resources are inadequate to deal with an emergency. A complete list of the Emergency Management Council representatives can be found at <http://www.txdps.state.tx.us/dem/pages/statelocalemergencymgmt.htm>.

2.1.1.4 Threats and Their Impact

Texas leads the Nation in Federal disaster declarations, and has for many years. Since 1953, Texas has had 228 major disaster declarations. Texas has the largest number of tornado impacts of any state and leads the Nation in the occurrence of flash floods and in deaths caused by such flooding. Texas is number two in the Nation for hurricane and tropical storm impacts. Ice storms, occasional earthquakes and major heat waves also impact the state. Texas is regularly affected by large-scale and persistent drought and related wildfires. In 2006, fires burned 1.7 million acres and drought caused more than \$6 billion in agricultural losses. Because massive quantities of oil, gas, and hazardous materials are produced, used, stored, and transported throughout Texas, the state experiences large numbers of fires, explosions, and hazardous material accidents at fixed facilities and during transportation operations. Because of the lengthy and porous Mexican border, a sizeable seacoast and a large number of international air, highway, rail routes and major highways, Texas is considered a potential terrorist threat with a significant risk of trans-national organized crime. This is particularly true in its major urban areas and in areas adjacent to the Texas-Mexico border.

Because Texas frequently experiences the aforementioned major disasters, local responders throughout the state have extensive experience communicating with other

local responders and with state and Federal responders who are frequently called on to assist local governments in responding to major emergencies and disasters as part of a unified command. Large rural areas of the state have minimal landline or cellular telephone service and limited radio communications infrastructure. This makes it difficult for responders in those to communicate among themselves and with other local, state, and Federal responders when a disaster strikes.

2.1.2 Regions/Jurisdictions

The Texas Association of Regional Councils coordinates common activities of the state's 24 planning regions, which are voluntary associations of local and tribal governments formed under Texas law. The regional entities and local governments join state, Federal and private partners, to provide cost-effective planning and more efficient public services statewide.

Additional information on the 24 planning regions and the counties within each region can be found at www.txregionalcouncil.org. City and county Web sites provide specific public safety agency information. Information on state agencies can be found at Governor Perry's Web site, <http://www.governor.state.tx.us/>.

The "State Planning Regions and Disaster District Boundaries" map in Figure 3 depicts the service area of each planning region. The list to the left of the map provides the name of each planning region in alphabetical order.

Number Region Name

18	Alamo Area Council of Governments
5	Ark-Tex Council of Governments
13	Brazos Valley Council of Governments
12	Capital Area Council of Governments
23	Central Texas Council of Governments
20	Coastal Bend Council of Governments
10	Concho Valley Council of Governments
14	Deep East Texas Council of Governments
6	East Texas Council of Governments
17	Golden Crescent Regional Planning Commiss
11	Heart of Texas Council of Governments
16	Houston-Galveston Area Council
21	Lower Rio Grande Valley Development Counc
24	Middle Rio Grande Development Council
3	Nortex Regional Planning Commission
4	North Central Texas Council of Governments
1	Panhandle Regional Planning Commission
9	Permian Basin Regional Planning Commission
8	Rio Grande Council of Governments
15	South East Texas Regional Planning Commis
2	South Plains Association of Governments
19	South Texas Development Council
22	Texoma Council of Governments
7	West Central Texas Council of Governments

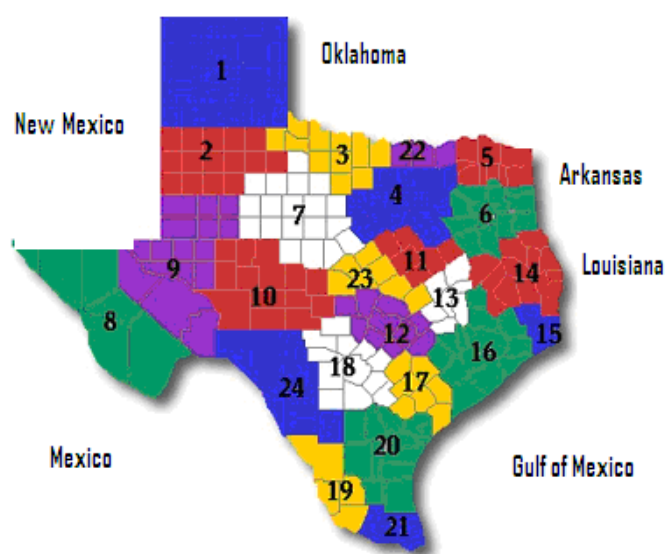


Figure 3 - State Planning Regions and Disaster District Boundaries

2.1.2.1 Geographic and demographic information

Texas is a vast state that includes coastal prairies, southeastern piney woods, a central hill country and portions of the Great Plains and the southwestern desert.

Possessing enormous natural resources, Texas is a leader in oil and gas production, refining and petrochemical production, and the manufacture of computer and telecommunications equipment, containers, industrial gases, cement, steel, and processed food. The state also has an extensive banking and insurance industry.

Texas is a major agricultural state with extensive farming, ranching, animal feeding and agricultural processing operations. It leads all other states in such categories as cattle, sheep and cotton. Texas ranches and farms also produce poultry and eggs, dairy products, greenhouse and nursery products, wheat, hay, rice, sugar cane, and peanuts, and a variety of fruits and vegetables.

Approximately 21 million Texans live in urban areas and more than three million reside in rural areas. The State of Texas includes 10 major urban areas, a sizeable number of mid-sized cities, and large rural areas. Major urban areas include Houston, the Dallas-Fort Worth area, San Antonio, El Paso, Austin, Corpus Christi, Lubbock, Laredo and Amarillo. Additionally, there are 1.4 million people in the cluster of medium-sized cities known as the Lower Rio Grande Valley, located in southern Texas adjacent to the international border with Mexico. The Dallas-Fort Worth metropolitan area actually

includes six large cities and dozens of smaller towns. Austin is the fastest growing city in the 20 most populous U.S. cities. However, the vast majority of Texas cities have less than 5,000 residents.

The largest population concentrations are in the Houston area and cities and counties along the upper Gulf Coastal plains (more than 3 million people), the Dallas-Fort Worth metropolitan area, El Paso in western Texas, and in the Austin-San Antonio corridor in central Texas. Parts of the Panhandle, portions of deep East Texas, and inland areas of South Texas are sparsely populated. Desert areas of West Texas are very sparsely populated

Texas shares state borders with New Mexico, Oklahoma, Arkansas and Louisiana, and has close working relationships with those states. These states participate in the Emergency Management Assistance Compact (EMAC), and regularly exchange emergency personnel and equipment during major emergencies and disasters. These five states comprise the Federal Emergency Management Agency's Region VI and participate in regularly scheduled meetings to confer on emergency preparedness, response and recovery activities and homeland security programs. Border counties in Texas are authorized by law to provide mutual aid assistance to neighboring counties in other states.

Texas has:

- 367 miles of coastline on the Gulf of Mexico, which includes 13 major sea ports
- 23 commercial airports and more than 250 general aviation airports
- The nation's largest highway system (more than 300,000 miles of highways)
- More than 7,000 dams and over 2,500 critical infrastructure facilities
- The nation's largest rail system, which is served by 45 rail companies
- The nation's largest oil and gas production facilities, massive refining and petrochemical production complexes, plus more than 300,000 miles of pipeline
- Two nuclear power plants and the U.S. Department of Energy's Pantex Nuclear Weapons Plant
- 18 major military bases and extensive defense industrial production facilities

Texas Indian Tribes:

There are three Federally recognized Indian Tribes in Texas today:

- The Alabama-Coushatta Tribe of Texas has a population of about 500 and is located on a 4,600-acre Indian Reservation near Livingston, Texas in Polk County.
- The Kickapoo Traditional Tribe of Texas is located near Eagle Pass in Maverick County on the international border with Mexico.
- The Ysleta del Sur Pueblo Tribe is located near El Paso in El Paso County.

Texas-Mexico Border:

Texas shares 1,254 miles of international border with Mexico, which provides 23 ports of entry. In 2006, more than 163 million people and vehicles crossed the Texas-Mexico border through bridges in Brownsville, Del Rio, Eagle Pass, El Paso, Fabens, Hidalgo, Laredo, Presidio, Progreso, Rio Grande City and Roma ports of entry. This number includes trucks, loaded and empty truck containers, trains, rail containers, train passengers, buses and passengers, personal vehicles and passengers and pedestrians.

Texas Homeland Security Director, Steve McCraw, advised that since March 2006, 347 people from "terrorism-related countries" have been arrested crossing the border in Texas. The number of Iraqis captured at the border has tripled since last year. McCraw said *"A porous border without question is a national security threat."*⁵

Border counties in Texas are authorized by law to provide firefighting assistance to neighboring cities in Mexico. The U.S. Environmental Protection Agency has sponsored a number of cross-border emergency assistance agreements between U.S. and Mexican border cities. Texas has provided emergency assistance to Mexico on a number of occasions and the Mexican Army recently provided feeding and medical support for evacuees in Texas during Hurricane Rita.

NAFTA:

The North American Free Trade Agreement (NAFTA) eliminated the majority of tariffs between products traded among the U.S., Canada, and Mexico, and gradually phased out other tariffs over a 15-year period. Texas lies near the center of NAFTA's economic space—about equidistant from Mexico City and Toronto, and networks of highways and rail lines lead to some of the world's busiest border crossings. Approximately 80 percent of Mexico's trade with the U.S. and Canada passes through Texas. For example, truck crossings at Laredo increased from 60,000 trucks per month pre-NAFTA to 135,500 trucks post-NAFTA.⁶

NAFTA covers both land and sea ports of entry. Texas now ranks as America's top exporting state, comprising 14 percent of the nation's overseas sales. Exports to Mexico rose—as many expected—but Texas products have also found expanding markets in Canada, Europe, Asia and Latin America as a direct result of NAFTA.⁷

2.1.3 Urban Areas/ Tactical Interoperable Communications (TIC) Plans

⁵ http://www.dailytexanonline.com/home/index.cfm?event=displayArticlePrinterFriendly&uStory_id=963ca78f-8610-469c-b11c-9a3d066ad186

⁶ Ellis, D., Lomax, T., Pisarski, A., Cox, W., and McEwan, J. Shaping the Competitive Advantage of Texas Metropolitan Regions: The role of Transportation, Housing & Aesthetics. Report for the Governor's Business Council Transportation Task Force. November 2006. Available at: <http://www.texasgbc.org/Reports3.htm>

⁷ "Did NAFTA Spur Texas Exports?" By Anil Kumar; Federal Reserve Bank of Dallas; <http://www.dallasfed.org/research/swe/2006/swe0602b.html#box>

Along with the Urban Area Tactical Interoperable Communications (TIC) Plans, Texas required each of the 24 Planning Regions to develop Regional TIC Plans. Each plan was reviewed and evaluated by a Technical Advisory Group (TAG). The TAG used the SAFECOM Continuum⁸ to determine the status of each region's communications capabilities and made recommendations on how to advance regional interoperability along the Continuum lanes. Tables 3 and 4 provide details on each of the Regional TIC Plans and the Urban Area TIC Plans.

Table 3 - Regional Tactical Interoperable Communications Plans

Regional Tactical Interoperable Communications Plans – Page 1				
#	Region Name / Council of Governments (COG)	Counties In The Region / COG	Regional TICP Completion Date / Revision	Regional TICP POC Name and E-mail
18	Alamo Area COG	Atascosa, Bandera, Bexar, Comal, Frio, Gillespie, Guadalupe, Karnes, Kendall, Kerr, Medina, Wilson	May 2006	Don McFarland, dmcfarland@aacog.com
5	Ark-Tex COG	Bowie, Cass, Delta, Franklin, Hopkins, Lamar, Morris, Red River, and Titus	October 7, 2005	Larry Trevino, ltrevino@atcog.org
13	Brazos Valley COG	Brazos, Burleson, Grimes, Leon, Madison, Robertson, and Washington	January 2005 / Revised February 2006	Ron Mayworm - rmayworm@bryantx.gov
12	Capital Area COG	Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, Llano, Travis, Williamson	September 2005 / Revised December 2005	Ed Schaefer, eschaefer@capcog.org
23	Central Texas COG	Bell, Coryell, Hamilton, Lampasas, Milam, Mills and San Saba	January 2004 / no revisions	Shannon Mattingly – smattingly@ctcog.org / Mike Simmons – msimmons@ctcog.org
20	Coastal Bend COG	Aransas, Bee, Brooks, Duval, Jim Wells, Kenedy, Kleburg, Live Oak, McMullen, Nueces, Refugio, San Patricio	June 24, 2005	RJ Thomas, rj@cbcogem.org
10	Concho Valley COG	Coke, Concho, Crockett, Irion, Kimble, Mason, McCulloch, Menard, Reagan, Schleicher, Sterling, Sutton, Tom Green	October 11, 2005 / Revised April 6, 2006	Steve Kuhlmann - steve@cvcog.org / Nicole Gonzalez - Nicole@cvcog.org
14	Deep East Texas COG	Angelina, Houston, Jasper, Nacogdoches, Newton, Polk, Sabine, San Augustine, San Jacinto, Shelby, Trinity, Tyler	May 24, 2005	John McDowell, jmcdowell@detcog.org
6	East Texas COG	Anderson, Camp, Cherokee, Gregg, Harrison, Henderson, Marion, Panola, Rains, Rusk, Smith, Upshur, Van Zandt, Wood	November 16, 2004	Donetta Murphy, Donetta.Murphy@twc.state.tx.us
17	Golden Crescent Regional Planning Commission	Calhoun, DeWitt, Goliad, Gonzales, Jackson, Lavaca, Victoria	N/A	Melody Lytle, melodyl@gcrpc.org

⁸ For additional information on the SAFECOM Continuum please see, <http://www.safecomprogram.gov/SAFECOM/tools/continuum/default.htm>

Regional Tactical Interoperable Communications Plans – Page 2

#	Region Name / Council of Governments (COG)	Counties In The Region / COG	Regional TICP Completion Date / Revision	Regional TICP POC Name and E-mail
11	Heart of Texas COG	Bosque, Falls, Freestone, Hill, Limestone, McLennan	October 2007	Dennis Stapleton, dennis_stapleton@lacy-lakeview.org ; Frank Patterson, frankp@ci.waco.tx.us ; Cheryl Walz, cheryl.walz@hot.cog.tx.us
16	Houston-Galveston Area Council	Montgomery, Walker, Harris, Chambers, Liberty, Fort Bend, Colorado, Matagorda, Waller, Austin, Galveston, Brazoria and Wharton	December 2006 / Revised March 2007	Mark Pemberton mark.pemberton@h-gac.com or Heather Brown heather.brown@h-gac.com
21	Lower Rio Grande Valley Development Council	Cameron, Hidalgo, Willacy	March 2006	George Garrett, ggarrett@rioplexwireless.com
24	Middle Rio Grande Development Council	Zavala, Dimmit, Real, Val Verde, Maverick, Edwards, Uvalde, La Salle, and Kinney	February 25, 2007	Spade Condry, spade@911planning.com
3	Nortex Regional Planning commission	Archer, Baylor, Clay, Cottle, Foard, Hardemann, Jack, Montague, Wichita, Wilbarger, and Young	N/A	Mary Kilgo – mkilgo@nortexrpc.org
4	North Central Texas COG	Collin, Dallas, Denton, Ellis, Erath, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, Tarrant, Wise	Completed April 19, 2006 / no revisions	Dan Scrivner, j.scrivner@dallascityhall.com
1	Panhandle Regional Planning Commission	Dallam, Sherman, Hansford, Ochiltree, Lipscomb, Hartley, Moore, Hutchinson, Roberts, Hemphill, Oldham, Potter, Carson, Gray, Wheeler, Deaf Smith, Randall, Armstrong, Donley, Collingsworth, Parmer, Castro, Swisher, Briscoe, Hall, and Childress	November 22, 2004	Fred Keithley, fkeithley@nctcog.org David Cann, dcann@theprpc.org
9	Permian Basin Regional Planning Commission	Andrews, Borden, Crane, Dawson, Ector, Gaines, Glasscock, Howard, Loving, Martin, Midland, Pecos, Reeves, Terrell, Upton, Ward, Winkler	Work in progress	Barney Welch, Director, - bwelch@pbrpc.org

Regional Tactical Interoperable Communications Plans – Page 3

#	Region Name / Council of Governments (COG)	Counties In The Region / COG	Regional TICP Completion Date / Revision	Regional TICP POC Name and E-mail
8	Rio Grande COG	El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, Brewster, Ysleta del Sur Pueblo Tribe (Tribal nation)	January 2006	Marisa Quintanilla, marisaq@riocog.org
15	South East Texas Regional Planning Commission	Hardin, Jefferson and Orange Counties	November 2004, Revised 2005	Sue Landry, SETRPC, (409) 899-8444, ext. 401 slandry@setrpc.org
2	South Plains Association of Governments	Bailey, Cochran, Crosby, Dickens, Floyd, Garza, Hale, Hockley, King, Lamb, Lubbock, Lynn, Motley, Terry, and Yoakum	Not completed	David R. Corder, dcorder@spag.org
19	South Texas Development Council	Jim Hogg, Starr, Webb, Zapata	August 2004	Oscar Ramirez, oramirez@stdc.cog.tx.us
22	Texoma COG	Cooke, Fannin, Grayson	April 19, 2006	Sarah Somers, ssomers@texoma.cog.tx.us
7	West Central Texas COG	Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Kent, Knox, Mitchell, Nolan, Runnels, Scurry, Shackelford, Stephens, Stonewall, Taylor, and Throckmorton.	April 2007, Revised August 2007	Tom Mann/Bill Shaw/Janna Owen tmann@wctcog.org bshaw@wctcog.org jowen@wctcog.org

Table 4 - Urban Areas TIC Plans

UASI Area	Regions / Jurisdictions	TICP Title/ Completion Date	TICP POC Name and POC E-mail
Tier 1 Houston Urban Area	All jurisdictions and disciplines within the City of Houston; Harris, Montgomery, Ft. Bend, Brazoria and Galveston Counties; Port of Houston; METRO.	Houston Urban Area Tactical Interoperable Communications Plan Completed: 3/5/2006 Exercised: 9/19/06	Sgt. Mike Macha Houston Police Department/ Mayor's Office of Homeland Security 713-437-6981 or 713-825-3553 (cell) Michael.Macha@cityofhouston.net
Tier 2 Greater Dallas/Fort Worth/ Arlington Urban Area	All Cities, Townships and Villages, including all government agencies and disciplines within the eleven counties of: Collin, Dallas, Denton, Ellis, Hood, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise	TIC Plan – Greater Dallas, Fort Worth, & Arlington Urban Area Completed: 3/2006 Exercised: 6/20/2006	Dan Scrivner, Communications Supervisor City of Dallas 3131 Dawson, Dallas, TX 75226 214-670-7995 j.scrivner@dallascityhall.com Alternate: Fred Keithley, Director of Community Services, North Central TX COG 616 Six Flags Drive, Arlington, TX 76011 817-695-9171 fkeithley@nctcog.org
Tier 2 San Antonio Urban Area	All Cities, Townships and Villages, including all government agencies and disciplines within Bexar and Comal counties	Alamo Area Region, San Antonio Urban Area Tactical Interoperable Communications Plan Completed: May 2006 Exercised: 10/2006	Don McFarland Homeland Security Director Alamo Area Council of Governments (210) 362-5296 dmcfarland@aacog.com
Tier 2 City and County of El Paso Urban Area	All Cities, Townships and Villages, including all government agencies and disciplines within the County of El Paso	DHS does not require a TICP of a new UASI; however the El Paso "Rio Grande COG Planning Region completed a Regional TICP January 2006.	Bonnie V. Guinn Public Safety Technology Manager City of El Paso 8600 Montana, Suite C El Paso, Texas 79925 Office: 915-771-1050 Fax: 915-778-0600 E-mail: guinnv@elpasotexas.gov

- The Houston Urban Area (Tier 1) is located on the Texas Gulf Coast.
- The Dallas/Fort Worth/Arlington Urban Area (Tier 1) is located in north-central Texas.
- The Austin Urban Area (Tier 2) is located in central Texas.
- The San Antonio Urban Area (Tier 2) is located in south-central Texas.
- The El Paso Urban Area is located in far west Texas and adjoins the international border with Mexico.

2.1.3.1 Summary of Scorecard Recommendations and Progress

Houston Urban Area

- A. **Governance:** The City of Houston has hired a Project Manager for the strategic design and implementation of the wireless platform to ensure that the new system is compatible with regional communication systems. The Project Manager is also responsible for working with the Regional Interoperable Communications Committee (RICC) to establish formalized agreements with regional partners. The goal of the UA is a standards-based Project 25 (P25) compliant shared system that would facilitate seamless communications within the region. The Houston UA is working closely with regional and state partners to assist in establishing a revised State Communications Interoperable Channel Plan.

The Houston UA Working Group Executive Committee has made interoperable communications a priority and has worked towards implementing an interoperable

communication solution for the region. Alternative sources of sustained funding for the design, development and installation of a shared system are being examined. The Houston UA Working Group will not fund projects that are not P25-compliant, are not in the 700-800 MHz frequencies, or if they are for stand-alone systems in order to leverage those funds towards shared systems.

- B. **Standard Operating Procedures:** SOPs developed with the Houston UA TCIP have been distributed within the Houston UA. The Houston-Galveston Area Council is developing a 13-county COG TICP. All regional exercises have an interoperable communications component to evaluate the training and usage by local, state and Federal partners and identify gaps and best practices.
- C. **Usage:** Console patches exist between the Harris County Regional Radio System, the Federal Interoperable Channels and the City of Houston police and fire departments to ensure regional interoperable communications between the different systems/frequencies. These patches are used daily by first responders in the region. The 24-hours-a-day console patch between the City of Houston and the Harris County Regional Radio System will discontinue when the City of Houston completes the migration to the 700-800 MHz spectrums.

Several mobile gateways are deployed within the City of Houston to achieve tactical communications with first responders who are on disparate systems. These gateways are used on a daily basis to coordinate tactical response within the region.

Greater Dallas/Fort Worth/ Arlington UA

- A. **Governance:** A regional MOU has been completed, accepted by the Interoperable Governance Committee and distributed to the 89 jurisdictions that participated in the Regional Initiative. Although regional communications plans exist, they are not the strategic plans recommended by the TICP Scorecard. The focus to date has been on achieving interoperability through governance, training, and exercises, and the use of gateways and patches. The new vision is to achieve the optimal level of interoperability with regional standards-based shared systems. The largest challenge to the development of strategic plans is the lack of participant staff time to devote to the project. As recommended, sustained funding is being examined. Draft recommendations, such as taxes, a communications authority, or other local funding, will be developed and presented to the Governance Committee. Regional SOPs are being examined by end user personnel for applicability. In addition, regional training programs are being examined to determine the best method for the region.
- B. **Standard Operating Procedures:** As stated earlier, end users are evaluating a set of SOPs. The TICP is currently being revised to condense the size of the document to make it more user-friendly and less redundant.
- C. **Usage:** The State of Texas is incorporating communications interoperability into their regional exercises. Additional, non-state-directed exercises would be

desirable to test inter-regional and inter-jurisdictional interoperability throughout specific parts of the region.

San Antonio UA

- A. **Governance:** A regional MOU has been completed, accepted by the Interoperable Governance Committee and distributed to the 71 agencies and the Department of the Army. Although regional communications plans exist, they are not the strategic plans recommended by the TICP Scorecard. The focus statewide to date has been on achieving interoperability with training and by providing gateways and patches where needed. The new goal is to provide seamless interoperability by building out standards-based shared systems. The largest challenge to the development of a strategic plan is the lack of participant staff time to devote to the project. As recommended, sustained funding is being examined. Draft recommendations such as taxes, a communications authority or other local funding will be developed and presented to the Governance Committee. End user personnel are examining regional SOPs for applicability. In addition, regional training programs are being examined to determine the best method for the region.
- B. **Standard Operating Procedures:** The San Antonio UA incorporated existing communications interoperability policies, practices and procedures into the TICP. The UA has taken steps to distribute and provide training on the SOPs. Recommendations include additional basic and advanced training through in-service refreshers and training courses to ensure that all participating first responder agencies attain and maintain NIMS/ICS compliance.
- C. **Usage:** The San Antonio UA demonstrated an ability to use available communications interoperability solutions. Recommendations include regular testing and exercise deployment of regional interoperability resource to improve proficiency in their use and consider adding communications interoperability as a component of all future exercises. The State of Texas is incorporating communications interoperability into their regimen of regional exercises. Additional, non-state-directed exercises would be desirable to test inter-regional and inter-jurisdictional interoperability throughout specific parts of the region. The region will be holding a small regional interoperability exercise, prior to the State Communications Exercise, to test assets and determine agency equipment capabilities.

2.1.4 Current Communications Interoperability Environment

Regional and Local Communications: Texas communications systems vary greatly. Due to its sparsely populated areas, barren regions and piney forest wilderness areas, much of rural Texas has few land telephone lines and less cellular phone service. These areas are also impacted by limited operability of public safety radio communications systems.

Most of the geography of Texas operates on wideband VHF conventional systems. This allows for some interoperability in coverage areas, however, it is not spectrum efficient and there is a need for additional public safety radio channels in regions adjacent to suburban and urban areas. Also, many of these systems operate on unreliable 20-year-old infrastructure that provides only partial operability.

The metropolitan areas typically have proprietary 800 MHz trunked systems with few P25 systems. Some of the proprietary systems are 20 years old and a majority of the systems are more than 10 years old. System managers are unable to expand the capacity and coverage of these systems due to a lack of available radio channels. Most regions operating on proprietary radio systems have been equipped with gateways and/or console patches to provide interoperability with adjacent cities and counties. Some of these regions have communications vans equipped with various interoperability components. Many of the older systems are experiencing problems finding replacement parts to keep the systems operable.

Two DHS-designated UAs – Houston and Dallas/Fort Worth/Arlington – use several different and aged radio systems within the cities for emergency communications. Detailed information on each individual UA is outlined below.

An additional problem most of the regions identified is keeping communications staff trained and experienced on the various types of interoperability equipment. Additional information on specific regional and local communications systems can be found in Section 4.2 Technology under Systems, Types and Agencies.

Texas-Mexico Border Region: The State of Texas has the longest international border. The border includes sizeable urban areas such as El Paso, which is a Tier 2 UASI, as well as major cities such as Laredo, Brownsville and McAllen. The City of Laredo is located on Interstate 35 (I-35) and is ranked second in the nation for international truck traffic. I-35 is a critical corridor for commerce in the United States. Big Bend National Park is a 1,252-square-mile mountainous park with 118 miles of international border. A significant portion of the international border between El Paso and Brownsville is very rural with no terrestrial radio communications or cell phone communications of any kind — no operability. The urban areas typically operate 800 MHz proprietary systems. There are six proprietary 800 MHz trunked radio systems in the Lower Rio Grande Valley area. El Paso has a proprietary 800 MHz trunked radio system. The City of Laredo recently implemented an 800 MHz P25 trunked radio system. The rural areas typically utilize wideband analog VHF. The Middle Rio Grande Development Council, a south Texas COG, has implemented a regional VHF P25 trunked system.

Houston Area UA: The City of Houston is the largest city in Texas, and the fourth-largest city in the U.S. The Port of Houston is ranked first in the United States in foreign waterborne tonnage, second in the U.S. in total tonnage, and tenth in the world in total tonnage. Houston is located on the Gulf Coast and is susceptible to hurricanes. The City of Houston is in the process of building a 700 MHz P25 communications system. Houston is the county seat of Harris County, which owns and operates a

Regional Radio System with many participating cities and counties. The Regional Radio System covers Harris County and parts of eight other counties, and provides interoperable communications to more than 33,000 users from more than 515 different departments/agencies. Harris County is currently in the process of transitioning from 800 MHz proprietary trunking to a P25 system. Aviation police and the Port of Houston are in the process of migrating to the regional P25 trunked system. *With around 17,000 radios required for City of Houston police, fire and public works, the current Harris County Regional Radio System does not currently have the capacity necessary to meet the communications needs of the City of Houston.*

The City of Houston and Harris County jointly submitted an application for a Community Oriented Policing Services (COPS) Tech grant from the U.S. Department of Justice, and recently received an award. The project includes the purchase and installation of three P25 master sites and a simulcast prime site. Harris County will be implementing one of the master sites to provide redundancy of their regional system and will be interlinking that master site to the redundant set of master sites for the City of Houston's new P25 system once constructed. The use of P25 standards-based equipment will enable emergency responders within the area to enjoy much higher levels of interoperability and provides much needed redundancy for current systems.

Dallas/Fort Worth/Arlington UA: The Dallas/Fort Worth metropolitan area is the most densely populated area of the state. The Cities of Dallas, Fort Worth and Arlington are all in the top 50 most populated cities in the U.S. The region includes the core counties of Dallas and Tarrant and the jurisdictions within the counties. In addition, the counties of Collin, Denton, Ellis, Johnson, Kaufman, Parker, Hood, Rockwall, and Wise, and the designated agencies within these counties, comprise the greater UASI region. The population of this 11-county region exceeds 5.625 million people, including a large number of international residents attending major universities in the metroplex. The area is a major tourist and business destination with more than seven million visitors annually. The North Central Texas UA has 34 Critical Infrastructure/Key Resources (CI/KRs) identified under the Buffer Zone Protection Plan (BZPP), which have a direct and vital impact to the state and nation. Among them are the two metropolitan transportation systems, AMTRAK rail and major transportation hubs at DFW Airport, Love Field and Union Station in Dallas.

The region has multiple conventional and trunked radio systems operating in the VHF, UHF and 800 MHz radio bands. There are 15 to 20 proprietary, 800 MHz trunked radio systems in the region. Dallas police and fire operate an aged, analog, UHF conventional system, while public works operates on 800 MHz proprietary trunked system. The City of Fort Worth/Tarrant County operates a regional 800 MHz proprietary trunked system, providing interoperability with several other trunked, multi-agency systems: City of Fort Worth Public Works, Northeast Tarrant Consortium, Cities of Arlington, Mansfield and Grand Prairie. In addition, Denton and Collin Counties and the City of Plano operate 800 MHz proprietary multi-agency, multi-jurisdictional radio systems. Migration of any system in Dallas/Fort Worth/Arlington is a challenge due to the large subscriber base and existing redundancy and interoperability. Maintaining

redundancy and interoperability is critical. There are no 800 MHz frequencies available in the metroplex, and migration to P25 will require 700 MHz.. In the rural areas, VHF is primarily utilized. Parker County recently purchased a P25 VHF trunked system.

The Dallas police department installed a network of wireless video surveillance cameras. The cameras are presently deployed in two areas, the central business district and the area north of Fair Park. These cameras are configured in a mesh network using an open, standards-based 4.9 GHz system with backhaul provided by unlicensed microwave. The project was funded by a local foundation, and as other funds become available, it is expected that the coverage will be expanded to more areas. In the Dallas/Arlington/Fort Worth UASI, both Fort Worth and Arlington have plans for wireless surveillance camera deployment.

El Paso UA: FY 2007 is the first year that El Paso has the benefit of a UASI designation. The City of El Paso is the second-largest international border crossing in the U.S., and the sixth-largest city in Texas. It adjoins Ciudad Juarez, Mexico, the fifth largest city in Mexico. 2.3-million people live in the combined metropolitan area. This is the largest population center on any international border in the world. El Paso is also a major transportation route supporting both domestic and international trade. Major transportation hubs are Union Pacific Railroad and El Paso Natural Gas Pipeline.

El Paso has four international border ports-of-entry bordering its sister city of Ciudad Juarez, Chihuahua, Mexico and an international airport. Ciudad Juarez, with its population of more than two million, provides much of the labor force that fuels the economic engine in this region. As many as 100,000 foreign citizens cross into El Paso daily to work. The primary border crossing that links El Paso, Texas and Ciudad Juarez is used by more than 100,000 people a day, with 20,000 of those daily travelers crossing over on foot. That makes the U.S. Port of Entry on the El Paso side one of the busiest border stations along the entire 2,000-mile U.S.-Mexico boundary.

El Paso currently uses an analog 800 MHz radio system for public safety communications. User agencies include fire, police, airport rescue fire fighting, airport, health, transit department (Sun Metro) and the zoo. The City of El Paso public works departments utilize the city's 450 MHz radio system. The two systems are patched via a gateway during major incidents. A remote wireless electronics station associated with the city's 800 MHz public safety radio system located at the El Paso County's Sheriff's Office's Dispatch Center allows the patching of VHF county and state agency subscriber units. El Paso has and will continue to collaborate with approximately 20 non-governmental agencies for voice interoperability. These agencies are: El Paso, Anthony, Canutillo, Socorro, San Elizario, Horizon and Fabens Independent School Districts; University of Texas at El Paso; Community College of El Paso; Ysleta del Sur Pueblo; Union Pacific Railroad Co.; Red Cross; Salvation Army; Providence Memorial Hospital; Las Palmas Hospital; Del Sol Hospital; William Beaumont Hospital; R E Thomason Hospital; and Far West Texas and Southern New Mexico Regional Advisory Council on Trauma.

The City of El Paso has a MOU with Ysleta del Sur Pueblo (one of the state's three tribes). The UASI region uses the Ysleta del Sur Pueblo's permanent site license for the 800 MHz analog National Public Safety Planning Advisory Committee (NPSPAC) channels. The Tribe also provided a repeater that is used for TAC 1 Channel. The Tribe has an analog 800 MHz conventional system that provides communications for the reservation and has recently become an agency on the City of El Paso's 800 MHz analog public safety voice system.

Data operability in El Paso is provided over both broadband networks with nine hot spots and 800 MHz infrastructure. Applications range from text messaging to streaming video. Devices include air cards, Blackberry's and notebooks. Agencies in El Paso using data communications include, but are not limited to, the City and County of El Paso, El Paso Independent School District Police Department, Socorro Police Department and University of Texas at El Paso Police Department.

San Antonio UA: The City of San Antonio is the second largest city in Texas, and the 7th largest city in the United States. In 2002, nearly 20 million visitors came to San Antonio to visit attractions such as the River Walk, the Alamo, Sea World of San Antonio, the Six Flags theme park, and to see events such as the National Collegiate Athletic Association (NCCA) Final Four Basketball Tournament in 2004 and again in 2008.⁹

San Antonio is known as "Military Town USA." Lackland Air Force Base (AFB), Randolph AFB and Fort Sam Houston are located in San Antonio. Kelly AFB closed in 1998, and was reconfigured as a Federal government aerospace contracting facility. Kelly is now known as Port San Antonio. San Antonio is also home to various state, Federal and reserve strategic training bases.

San Antonio and Bexar County implemented a proprietary 800 MHz trunked radio system from 1999-2003 which is now being transitioned to P25. Although San Antonio and Bexar County have a combined population of 1,651,448, mostly rural counties surround them. Many of these rural areas use the County Sheriff's VHF conventional radio system for emergency communications. Gateways have been implemented to provide communications interoperability. However, out of the seven adjacent counties, five of the counties have major operability problems. Some of the equipment in use is more than 20 years old, and does not provide adequate coverage for the county.

Most recently, San Antonio has been designated by the state to activate the Alamo Regional Command Center during major emergencies and disasters. San Antonio is a major evacuation shelter hub, expecting over 40,000 evacuees during hurricanes, and it has also become the logistics staging area for major disasters occurring along the coast or our southern border with Mexico. During Hurricane Dean in 2007, over 1,300 buses and ambulances, and approximately 3,000 responders staged in San Antonio awaiting assignment. Managing this wide variety of resources and personnel is a major

⁹ City of San Antonio, Economic Development Department, http://www.sanantonio.gov/edd/driver_industries/hosp/ti_vr.asp

communications challenge. San Antonio plans to overlay their existing 800 MHz radio system with a 700 MHz P25 system to provide interoperable communications to a wide variety of regional, state and Federal responders. Their ultimate goal is to provide a radio system with seamless roaming for responders from San Antonio to the coastal and border regions of Texas.

Bexar Metro 9-1-1 District, Bexar County and the City of San Antonio were recently awarded a 2007 COPS Tech grant. This award will be used to implement a Regional Emergency Communications Information sharing and Mobile data system (RECIM). Phase I of the project will provide CAD and mobile data for public safety agencies in Bexar, Comal and Guadalupe Counties. Phase II will integrate agencies in Wilson, Atascosa, Bandera, Medina and Kendall Counties. Phase III will push the system into the 12 counties comprising the Alamo Area Council of Governments. Ultimately, Phase IV will extend information sharing capabilities to agencies along the I-35 corridor. An additional \$6 million has been identified locally to implement the other phases of the project not covered by the COPS Tech grant. The total cost of all the phases is estimated at \$15 million. Subsequent phases will include a shared records management structure. The organizations involved include 46 local law enforcement, fire and emergency medical service agencies along with non-governmental organizations such as volunteer fire departments.

The data system will use commercial broadband as primary data transport back to the existing host systems, and future mobile, records management system (RMS) and field reporting systems. Notebooks and other mobile devices will be used in the field. All public safety answering points (PSAPs) within Bexar, Comal and Guadalupe counties will soon be connected with dedicated fiber. This connectivity will provide the PSAPs access to the CAD. In addition, a Citrix Server(s) will be used to support locations (command vehicles, etc.) that need access to the full CAD application but do not have a dedicated fiber connection to the core system. The result will be a regional system that supports the interoperability requirements of public safety responders located in this region. This will allow smaller cities with less population and funding to be part of a large network and have first class applications with minimal investment in equipment.

Texas Department of Public Safety (DPS): Texas DPS is the primary public safety first responder agency for the state covering 254 counties with approximately 3,000 patrol officers. DPS's major communications challenges include console functionality and interoperability. DPS plans to network its existing 32 communications facilities to maximize existing resources and facilitate interoperability. DPS is in the process of implementing a VHF P25 conventional radio system. As more users are converted to the system the need for additional frequencies has become increasingly evident. Currently, DPS has limited ability to contact other agencies or officers who operate on a trunked radio system. DPS will migrate toward a statewide hybrid trunked radio system utilizing 700 MHz where feasible. DPS networked five communications facilities into the Harris County Regional Radio System and two communications facilities into the City of Austin/Travis County Regional Radio System for interoperability. DPS will

continue to work with regional radio systems and other first responder entities to achieve interoperability.

Lower Colorado River Authority (LCRA): The Lower Colorado River Authority has one of the largest 900 MHz trunked systems in the state, covering 37,000 square miles and 54 counties. Public safety, transportation, school districts, municipal city and county governments and state agencies utilize the LCRA system, which makes it difficult for these agencies to interoperate with users in the VHF, UHF, and 800 MHz bands. Gateway devices, console patches and other solutions to the problem are costly to implement due to the size of the LCRA system.

LCRA submitted a Public Safety Interoperability Communications (PSIC) grant investment justification for a project to implement a 700 MHz overlay to its existing 900 MHz system. This project will install redundant switches and a conventional gateway and other equipment for seamless integration into existing regional and local systems to improve interoperability.

Texas Department of Transportation (TxDOT): TxDOT is the state agency charged with providing basic transportation and road infrastructure for the entire State of Texas. Communications with TxDOT have been a challenge due to TxDOT's use of Low Band VHF (47 MHz) for the past 40-plus years. Beginning in 2003, TxDOT began a major migration program to move from Low Band communications to the VHF High Band (150 MHz) frequencies for better operability and interoperable communications as well as with other state and local agencies.

TxDOT operates over 290 VHF High Band repeaters located at maintenance sections (in most cases at the county level) around the state with over 15,000 mobile, portable and base radios deployed in the field. To provide TxDOT with communications for its operations, the VHF systems are combined with the Houston District, operating on the Harris County Sheriff's Office wide-area 800 MHz trunk system, the Austin District, operating on the LCRA 900 MHz wide area trunk system, and the Laredo District, operating on the Middle Rio Grande COG's wide-area VHF system.

TxDOT has gathered field-deployable assets for communications emergencies consisting of ten portable VHF High Band repeaters, over 100 portable VHF High Band radios, eight portable base/control stations, a mobile communications vehicle with HF, Low Band, High Band, UHF, 700/800 MHz, 900 MHz and Satellite Phone capabilities.

Additionally, TxDOT has the only HF Single Sideband (SSB) radio network deployed in Texas dedicated to agency or public safety use. There are HF SSB radio stations located at each of the 25 district offices around the state with three mobile HF stations. These can be operated on licensed HF public safety frequencies as well as the RACES and other Amateur Radio HF frequencies. Plans are in development to integrate a digital HF e-mail system into the HF network for passing large amounts of text and other information via HF radio.

TxDOT is making the commitment to work very closely with state, local, tribal and Federal agencies by partnering where it is suitable for communications operability and interoperability. TxDOT recently partnered with Harris County in acquiring a P25 trunking switch that will be used for a 700 MHz system planned for the coast of Texas to enable interoperability.

Texas Military Forces: The Texas Military Forces (TXMF), consisting of the Texas Army National Guard (TXARNG), Texas Air National Guard (TXANG), and Texas State Guard (TXSG), are directed and supported by the Texas Adjutant General's Department (AGD). Personnel include 19,000 part-time citizen soldiers and airmen along with 4,000 full-time personnel including soldiers, airmen, and state and Federal civilian employees dispersed at 107 National Guard armories, training sites and Air National Guard Bases across Texas. These personnel are all trained, equipped and organized into deployable units. They are commanded by the Adjutant General of Texas, who reports to the governor for state missions and the Department of Defense (DoD) for Federal missions. The TXMF possesses approximately \$4 billion in Federal equipment including combat vehicles, trucks, helicopters (UH-60, CH47), airplanes (C-130, C-23, C-26, C-12, and F16) and support equipment. Over the past few years, DoD has deployed units of the TXMF totaling more than 12,000 personnel to Bosnia, Kosovo, Iraq, Afghanistan and other locations in the Global War on Terror. The State of Texas has depended heavily on the TXMF in response to disasters deploying more than 4,000 troops for Hurricanes Katrina and Rita in 2005 and most recently 4,700 troops and 600 vehicles for Hurricane Dean in 2007. The TXMF serves as a supporting agency in state hurricane evacuations. The TXMF stands ready to deploy up to 10,000 personnel, on short notice, as part of an ICS-centric Joint Inter-Agency Task Force (JIATF) in support of state emergency management plans. The TXMF serves as the focal point for coordinating and obtaining all DoD assets that may be needed by the state, and then coordinates integration of those assets into the state response.

While the TXMF is almost entirely Federally-funded, that funding supports personnel salaries and Federal equipment designed for wartime operations. Any state use of TXMF, Federally funded equipment or personnel generally requires reimbursement by the state. The TXMF has significant quantities of battlefield communications equipment including radios, networks and satellite terminals. Unfortunately, these systems are extremely labor and manpower intensive, largely not interoperable with non-DoD agencies, and routinely require DoD advanced approval to place into operation.

To be viable as a rapid responder for state emergencies, the TXMF obtained relevant, interoperable communications equipment from Federal funds for Base Support for the data network. As a result, required modernization of the data network that supports the deployable packages has been delayed; the network is in dire need of infrastructure modernization to continue to be able to support state needs during disasters. No state funds have been allocated or reimbursed to support this capability. Current interoperable communications and satellite packages support the deployed National Guard Task Force(s) and other critical inter-agency command posts and emergency

response forces as outlined in Annex N (Direction and Control) to the State Emergency Management Plan. This includes Area and Unified Commands such as the Disaster District Committees (DDCs), State Emergency Response Team (SERT), State Incident Command Posts (ICPs), Emergency Operations Centers (EOCs), Evacuation Hubs, Evacuation Fuel Points, etc.

Interoperable communications used by TXMF for state response include:

- Joint Operations Center (Austin, TX) - WebEOC and full spectrum communications
- Task Force HQ Command Van (45') w/ VHF/UHF FM (non-P25) on Texas Statewide Interoperability Channel Plan, Aviation Radios, MSAT, Military Radios,
- Five Commercial Deployable Satellite Packages with high-speed data providing Voice Over Internet Protocol (VoIP) phones, data drops, gateway with VHF/UHF/800 (some-P25) and HF or INMARSAT
- A Portable Fly Away Package with VHF/UHF FM (non-P25) on Texas Statewide Interoperability Channel Plan, Aviation Radio, MSAT
- VHF Handheld (non-P25 XTS-5000) on 150 MHz Texas Statewide Interoperability Channel Plan channels
- A VHF Portable Repeater (non-P25)
- UH60 and CH47 helicopters with commercial VHF/UHF radio (non-P25)
- 900 - Blackberrys (Phone, E-mail and SMS Text Messaging)
- 1,000 - Cell phones
- 10 Deployable HF Stations w/E-mail via HF PMBO gateways (TXSG on MARS and RACES/Ham nets)
- Sustaining Base Command and Control Data Network with Primary and Alternate Data Centers, dedicated ATM T1 data links to 101 sites and all required systems to support disaster response, Microsoft Exchange E-mail, CITRIX Remote Access Portal, VPN, WebEOC, SharePoint Web site, etc. Supports all deployed satellite packages

Non-Interoperable communication equipment used by TXMF includes:

- 2,000 UHF Handheld (non-P25 XTS-5000) on 380-420 MHz
- Two UHF Repeaters P25 (380-420 MHz)
- >20 Portable military 20watt HF stations (PRC-150) capable of voice and data modes
- A Large Military Satellite Package (CBCS) (many phones and much data, large scale) Requires DoD satellite airtime approval.
- >1,000 - Military SINCGARS Radio (30-88 MHz) FM/Digital/Secure.
- >20 - Military Single Channel Satellite Radios (SCAMP, PSC-5, PRC-117F) Requires DoD satellite airtime approval.
- TKO (Texas Knowledge On-Line) - Common Operational Picture data SharePoint Web site (internal TXMF File Sharing)

2.1.5 Summary of Current Problems and Possible Solutions

- **There is a lack of training and education on current interoperability capabilities and structure.** Currently, Texas uses console patches and gateways for interoperability between disparate systems. Unfortunately, in most cases, users are unfamiliar with these interoperability capabilities. To address this problem in accordance with the SAFECOM Continuum, SCIP Goal #2 states: “Enhance use of interoperable communications systems with integrated NIMS compliant regional SOPs” address.
 - *Possible solution: A primary initiative of the Texas SCIP is to carefully evaluate, plan, design and revise and/or implement new SOPs and Training and Exercise Programs.*
- **There are no available channels in a specific radio band in many metropolitan and rural areas.** The growth in Texas complicates radio system challenges because communication systems cannot keep up with the increased need for coverage and capacity. With no available channels in applicable radio bands in some rural areas and most of the major urban areas, agencies are utilizing “band-aid” solutions until spectrum and funding become available.
 - *Possible solution(s): 1) migrate wideband VHF systems to narrowband and/or digital; or 2) push for the continued deployment of 700 MHz channels and systems.* Texas 700 MHz projects include:
 - Plano and Frisco, two cities in the Dallas/Fort Worth/Arlington UASI, have designed and funded 700 MHz projects
 - Dallas plans to upgrade and expand an existing system with 700 MHz frequencies to provide interoperable communications to public safety agencies
 - Houston is building a 700 MHz interoperable communications system
 - Harris County needs funding to increase capacity and expand its regional system into new areas with 700 MHz frequencies
 - San Antonio is implementing 700 MHz for system enhancements and exploring partnerships which leverage existing infrastructure and resources to increase the coverage area and agencies served
 - El Paso needs 700 MHz for mutual aid and international operability
 - The Texas Department of Public Safety deployed a 700 MHz system at the State Capitol complex in central Austin, which is tied into the Austin-Travis County/Williamson County Regional Radio System
- **There is NO operability in parts of Texas.** Emergency communications operability remains a problem for many public safety agencies in rural Texas, including but not limited to Regions 7, 19, 14, 5 and 18, and especially along the Mexico border. Public safety communications systems have limited reach in a considerable area of the state; these areas often have few landline

communications, and minimal or no cellular telephone communications. Many of the rural areas suffer from lack of backup power and rusting towers.

- *Possible solution(s): 1) Build-out the Border Communications Plan by upgrading and/or expanding existing P25 systems along the border; 2) regional planning and collaboration on the strategic implementation of infrastructure, including tower replacement; and 3) identify and provide equipment to meet specific communications safety needs of our first responders.*
- **Aged equipment.** Many of the existing trunking systems have aging equipment that no longer have parts available or support from the vendors.
 - *Possible solution: Addressed in Texas SCIP Goal #6: “Secure consistent funding for ongoing development, capital replacement, and operations and maintenance costs.”*
- **Minimum interoperability.** *The range of interoperability spans the SAFECOM Continuum from extremely “limited” in many areas to a “high degree” in very few of the regional radio system areas.*
 - *Possible solution: Shared/mutual-aid channels, patches, gateways, switches and the growing of regional P25 systems.*

The data provided by Communications Asset Survey and Mapping (CASM) is providing information to identify the right solution for the specific area.

More details on solutions are provided in Section 5.4, Strategic Initiatives.

2.2 Participating Agencies and Points of Contact

The whole of the TxRC membership contributed to the development of the Texas Statewide Communications Interoperability Plan. Members of the individual Working Groups drafted specific sections of the plan for review by the TxRC Steering Committee. When all sections of the SCIP were assembled, a draft SCIP was provided to ICTAP for review. The TxRC Steering Committee met with DHS Interoperable Communications Technical Assistance Program (ICTAP) representatives, and over two days discussed and made changes throughout the document.

The complete list of over 100 participating individuals and agencies is published as Appendix A of this document.

2.3 Statewide Plan Point of Contact

Mike Simpson is the full-time Texas Statewide Communications Interoperability Coordinator (SWIC). He is also a full-time Assistant Director for the Texas Department of Public Safety, Law Enforcement Support Division..

Mike Simpson

Texas Statewide Communications Interoperability Coordinator

Assistant Director, Texas Department of Public Safety
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2.4 Scope and Timeframe

Major funding programs for interoperable communications prioritize funding for critical infrastructure, UASIs and highly populated areas. Texas has:

- Two Tier 1 UASI – Houston and Dallas/Fort Worth/Arlington
- Three Tier 2 UASIs – Austin, El Paso and San Antonio
- Numerous counties with populations under 10,000 along the coast and international border

A primary concern of Texas public safety agencies is communications operability. In addition, a major concern for Texas and the nation is securing the international border with Mexico and the Texas coastline.

“The NIMS places responsibility on individual Federal, state, local, tribal, and territorial governments and agencies for establishing a preparedness cycle in advance of an incident and for including the private sector, organizations, and individual citizens, as appropriate.”¹⁰

The critical functions that this Texas statewide plan will focus on for the next three years are:

- Promoting state legislation that enforces and provides funding for timely and cost-efficient execution of strategic plan initiatives, which support all aspects of statewide communications and interoperability.
 - Milestone: Identify and enlist legislative champions. Establishing and mandating the technology standard for the *Texas Statewide Communications Interoperability Plan* and providing regional migration strategies using the SAFECOM Continuum as a guide.
 - Milestone: Develop regional migration plans to reach the goal of seamless standards-based interoperability.
- Providing communications operability and interoperability through permanent designated mutual aid infrastructure where necessary.
 - Milestone: Identify and prioritize areas where mutual aid infrastructure is needed.
- Providing communications necessary to secure the international border and coastline with the expanding regional collaboration of state, local and tribal

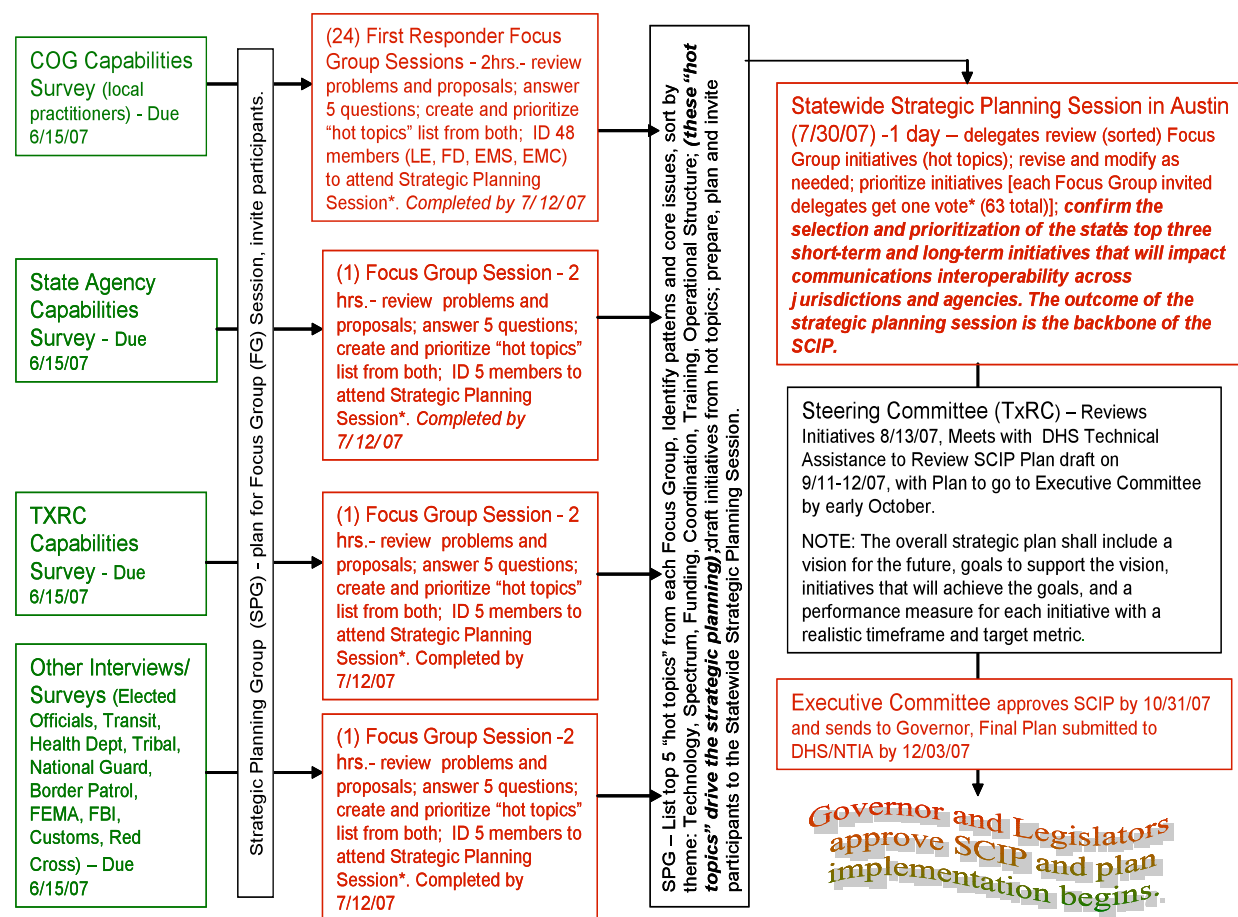
¹⁰ National Preparedness Guidelines; September 2007; page 3.

agencies using available funding and governance agreements as suggested in the SAFECOM Continuum.

- Milestone: Fully develop the border and coastline regional interoperability plans.
- Providing interoperable communications for the DHS-designated urban areas.
 - Milestone: Deploy 700 MHz channels in the urban areas.
- Improving and expanding regional responder efficiency and effectiveness through integrated-coordinated SOPs and Training Programs with mandated evaluations and certifications using the SAFECOM Continuum as a guide.
 - Milestone: Provide recommendations for training and exercise programs and develop regional SOPs.

3 Methodology

The TxRC, with the assistance of TARC and the DPS State Administrative Agency (DPS-SAA), organized 27 focus group sessions for regional entities and urban areas, local governments, state and Federal agencies, and non-governmental organizations, specifically volunteer fire departments. Each focus group identified their communications needs and concerns. Representing over 5,000 public safety agencies, more than 130 Texas critical infrastructure representatives, emergency responders, communications professionals and elected officials gathered at the Statewide Strategic Planning Session to develop and prioritize short and long-term initiatives for the Texas SCIP. Figure 5, the “SCIP Strategic Initiative Flow Chart,” is a graphical chart that clearly relates the development process for the strategic initiatives, vision and goals of the SCIP. Figure 5 starts with the Communications Assets Survey and concludes with the governor approving the SCIP.



*Voting ratio is established by SAFECOM Methodology.

Revised 10/01/07

Figure 4 - SCIP Strategic Initiative Flow Chart

The Communications Assets Survey was designed to identify where the individual agency's communications capability fell in the SAFECOM Continuum (e.g., did the agency participate in "Multi-agency Full Functional Exercises Involving All Staff," or only provide "General Orientation on Equipment"). The survey was the preliminary effort to identify gaps in communications interoperability across Texas.

The focus group sessions were the next opportunity for agencies to discuss where their communications fit into the SAFECOM Continuum. Each group was asked five questions centered along the Continuum capabilities (e.g., "Have the NIMS requirements been incorporated into your SOPs?"). Answers to the questions were from a regional perspective and provided insight into regional interoperability for the public safety agency participants and for the SCIP. The results of this process was a total of 24 regional focus group sessions and three special focus group sessions, which identified specific operability and interoperability concerns of more than 5,000 public safety agencies and non-governmental organizations (non-profit EMS and 44 volunteer fire departments representing the concerns of these specific organizations statewide) to send to the Strategic Planning Session for review. At the Statewide Strategic Planning Session, delegates from the focus groups prioritized initiatives for the SCIP.

Working groups were organized within the TxRC to research and recommend solutions and initiatives to progress forward along the Continuum and achieve statewide interoperability. The state's DHS urban areas provided the necessary leadership along with their invaluable experience gained by the development of their TICPs, exercises and scorecard recommendations. During monthly meetings and video conference sessions, subject matter experts, UASI representatives and regional first responders collaborated on Governance, Technology, Training and Exercises, SOPs and Usage to facilitate the development of the SCIP. Appendix E lists the Working Group members and identifies their discipline and the group they represent (e.g., Region, State Agency). The working groups along with their past and present responsibilities are outlined below.

1. The Governance Group drafted the governance documents including the charter/mission statement, organization chart, rules and responsibilities, meeting schedules and authority.
2. The Capabilities Assessment Group is driving the assessment of current communications technology across the state. The Communications Asset Survey and Mapping (CASM¹¹) tool provided by the DHS Interoperable Communications Technical Assistance Program (ICTAP) is being used to inventory the communications assets in the state. The CASM tool tracks available equipment. As agencies acquire new equipment and/or capabilities, CASM will be updated.
3. The Strategic Planning Group facilitated 27 focus group sessions, the Strategic Planning Session and the development of the strategic initiatives; the group proposed the long-term vision for interoperability, and recommends investment priorities and justifications.
4. The Technology Group researched, analyzed and recommended both voice and data interoperability solutions and best practices and continues to do so.
5. The Implementation and Evaluation Groups will continue to devise the action plans, timeline and critical success factors, along with the assigned roles and responsibilities, to achieve the short- and long-term initiatives.
6. The SOPs and Training and Exercises Groups will continue to evaluate existing statewide programs and develop procedures to overcome the gaps and achieve interoperability across the SAFECOM Continuum. The group followed the SAFECOM Writing Guide for SOPs as a basis to provide regional templates for the development of the Regional SOPs.

¹¹ http://www.ojp.usdoj.gov/odp/docs/CASM_tribold8Final.pdf

7. The Funding Group is identifying funding sources, developing a comprehensive funding strategy to sustain interoperability and identifying resources to leverage active projects.

Figure 6, “Developing the Texas Statewide Communications Interoperability Plan,” portrays the evolution of the critical initiatives for the Texas SCIP. Each initiative is linked to a SCIP goal and back to the SAFECOM Continuum for the development of the statewide plan and statewide interoperability (see Section 5.4).

Identifying Critical Initiatives for Statewide Interoperability in Texas



1. We started with the Texas Homeland Security Strategy and the Texas Interoperable Communications Plan as a foundation.



2. Then we used the SAFECOM Interoperability Continuum as a guide and focused on the 5 elements of interoperability (Governance - Standard Operating Procedures - Technology - Training/Exercises - Usage) to ask emergency practitioners what problems they have talking to each other in critical situations.



3. We met with Federal, State and Local Elected Officials to seek their support.



4. Next, 27 Focus Groups Sessions (FGS) were scheduled, 25 submitted reports where the emergency practitioners prioritized their communications concerns into "hot topics" and each FGS sent 5 "hot topics" forward.



5. Over 100 "hot topics" were converted into "Critical Initiatives." Each "Critical Initiative" can be traced back to one or more "hot topics" and each "hot topic" is addressed by a "Critical Initiative."



6. Next is the Statewide Strategic Planning Session where the Statewide Communications Interoperability Plan Goals are confirmed and the Critical Initiatives are discussed and prioritized for the SCIP. Participants are to comment on and validate the information, re-insert comments left out during the process and prioritize the results.



7. The Critical Initiatives and Goals are incorporated into the SCIP for Implementation.



8. The final draft of SCIP is submitted to the Governor for approval. Then, after approval by the Department of Homeland Security the grant programs open.

Figure 5 – Developing the Texas Statewide Communications Interoperability Plan

Because Texas has five UASI areas, UASI representatives experienced in developing their TICPs were available to take leadership roles in the creation of the Texas SCIP. The UASI Exercises had identified similar gaps in interoperability as were identified in the Capabilities Survey, shown in Figure 6. UASI TICIP Scorecard Recommendations, which are the nucleus of this SCIP, include:

- 1) Obtain acceptance from all participants on regional strategic plans for communications
- 2) Develop an interoperable funding strategy, including sustainability, that addresses long-term communications interoperability needs
- 3) Prioritize regional interoperability procedures and associated training that are accepted by leadership

Five of the seven critical components discussed in Section 2.4 of the SCIP are directly related to the UASI TICPs; with one component specific to the UASIs: *Providing interoperable communications for the UASI areas.*

3.1 The Process for Implementing the Texas Statewide Plan

Performance measurement, effective program management, continuous assessment of the statewide plan milestones and implementation of midcourse corrections where necessary are crucial steps in effective planning and achievement of goals. Strategic plans set the foundation by establishing priorities and strategies for implementation, and by assigning responsibility and allocating resources. Performance measures are the tools that provide ongoing assessment of the impact and outcome of operations, as well as an appraisal of the efficiency and effectiveness of the processes surrounding the operations.

An essential element in any performance measurement process is in the current status of the state, both locally and regionally, with regards to both *operability* and *interoperability* and calibrating a baseline of performance. Baseline measures identify the current situation, and/or projections for the immediate future, given existing and anticipated circumstances. The statewide deployment of ICTAP's CASM tool will be used to gather and identify these baseline capabilities. Jurisdictions will be required to enter communications assets and capabilities into CASM and provide regular updates to be eligible for funding. The state has made assistance available to any jurisdiction that requests aid, and El Paso has developed a program to simplify and speed the data entry process that will be available on the TxRC Web site at <http://txrc.region49.org>

Defining strategic objectives and building operational and tactical plans for implementation requires a comprehensive understanding of current operations, and accurate and precise measures of key performance indicators. Planning and implementing projects that are tightly aligned to the strategic objectives require careful

and continuous monitoring to ensure efficient operations, effective implementation and adequate return on the investment of time and resources needed.

Technology: Before a local jurisdiction may submit a project for consideration by the state, the Communications Committee or a similar group of the appropriate Council of Governments, Development Council or Planning Council must perform a preliminary review at the regional level. Where possible, reviewers should represent a cross-section of the communications community and include representatives from: cities, counties and tribes where appropriate; conventional and trunked systems, and VHF, UHF, 700 MHz, 800 MHz and 900 MHz systems. Jurisdictions must have baseline information (towers and point of contact (POC)/name) entered into CASM to show the jurisdictions' commitment to adhere to the SCIP. Projects that are deemed to satisfactorily meet the state's plan will be submitted to the state for formal review. A peer evaluation will be utilized for review of investment justifications seeking funding to implement projects inline with the SCIP to ensure consistency with the statewide planning process.

The Texas Interoperability Coordinator, with advice from the TxRC, will convene panels of peers and subject matter experts (SMEs) to evaluate and review the local submissions. Peers will be current or former members of the local, state or tribal emergency response community and agency telecommunications support personnel. SMEs will be individuals who are knowledgeable about, and have experience in, public safety/emergency response radio communications. When possible, SMEs will be chosen from agencies represented on the TxRC. To maintain objectivity and ensure accountability, peers and SMEs will:

- Not serve on a panel assigned to review the application of a local jurisdiction that the reviewer helped to prepare.
- Not serve on a panel assigned to review the application of a local jurisdiction that employs the reviewer.
- Not serve on a panel where the panel decision could potentially provide – directly or indirectly – financial, professional or personal benefit to the reviewer.
- Not be employed by an equipment manufacturer that could – directly or indirectly – benefit by the peer review panel decisions.

3.2 Requirements

(Criteria 11.2)

Strategic Technology Reserve (STR)

Because DPS is the designated first responder state agency, DPS will continue to implement and manage the STR equipment from various strategic locations across the state. The STR may include:

- Command/Communications Trailers
- Primary Towing Vehicles

- Portable Radios P25 with Trunking
- Cellular on Wheels
- Trunking Site on Wheels
- Laptop Computers for each Command Trailer
- Suitcase Digital Repeaters with Trunking
- IP Gateway Devices
- FRS Radios
- Portable Generators
- Cargo Trailers
- Portable Gateway Devices
- Video Downlink for Helicopters
- Satellite Telephones and Radios
- HF Radio Equipment

Texas has planned for the effects of tropical storms or hurricanes making landfall on its coast. The nature of these storms permits the pre-positioning of resources before an anticipated landfall. Analysis of this problem has identified the need for communications augmentation along disaster evacuation routes before landfall. Further analysis reveals the need for communications restoration after a catastrophic event further inland. The STR proposal meets those requirements by facilitating mutual aid communications and status reporting during evacuation operations and providing resources for rapid restoration of services. The STR resources can be used in the UAs with established TICPs and inventories of interoperable systems. When called upon to support planned events or respond to hostile events, the STR assets can provide augmentation to expand the area of coverage of existing systems, take the place of existing systems during planned events to free local systems for response if necessary, or replace local systems damaged during a hostile event.

(Criteria 11.3 and 11.4)

Local and Tribal Government Entities and Non-governmental Organizations Involvement in Interoperable Communications Planning and Solutions

More than 50 percent of the TxRC leadership is composed of local government and non-governmental groups. The planning and prioritization of these local, tribal and non-governmental needs and solutions are foremost and tightly woven throughout the goals, objectives and strategic initiatives in the SCIP.

Cities and Counties: Local governments active in the SCIP process make up more than 50 percent of the TxRC membership, and have key leadership roles, including four positions on the TxRC Executive Committee and co-chairpersons of five Working Groups. The estimated ratio of local government active participation on the TxRC Steering Committee is 54 percent. Twenty-four of the 27 Focus Groups that identified the concerns and strategic initiatives for the SCIP were facilitated by regional Councils of Governments for local public safety agencies. Local government and public safety organizations provided primary leadership that fueled the development of the SCIP.

Alabama-Coushatta Tribe of Texas: The Alabama-Coushatta Tribe participates in homeland security and interoperable communications planning in the Deep East Texas COG (DETCOG) area. The tribe has signed both the DPS Channel Plan MOU and the Texas Forest Service MOU. The Tribe Fire Department has been issued communications equipment purchased with DHS funds. The tribe has mutual aid agreements with Polk County and area fire departments. The County Sheriff's Office provides law enforcement for the tribe. Both the Fire Department and Security Department have the County Sheriff's primary radio channel in their equipment for emergency contact, and the mutual aid channels for incident management.

Kickapoo Traditional Tribe of Texas: Until a few years ago, the Kickapoo Tribal Police Department had no interoperable communications capability for their 22 officers. The Kickapoo Tribal Police Department is a non-governmental emergency responder agency. Since early 2005, the Middle Rio Grande Development Council of Governments (MRGDC) has assisted the Kickapoo with radio communications and planning for future interoperability. The tribe signed the regional and state Interoperability MOUs and was provided their own unique talkgroup on the nine-county MRGDC P25 Regional Interoperable Radio System, which provides the tribe's current communications. The tribe currently has a radio dispatch console and a few mobile and portable radios for their officers. These radios have the state interoperable radio channels as well as the regional radio system interoperability. The Kickapoo Tribe has been invited to actively participate on the TxRC Steering Committee. The TxRC and the MRGDC will continue to include the tribe in interoperability planning and addressing their needs.

Ysleta del Sur Pueblo: Although this tribe has an analog 800 MHz conventional system to serve their reservation, they have chosen to join the City of El Paso's public safety system for regional interoperability. As the UASI builds out system interoperability with sites and upgrades, the tribe will benefit.

Eventually, as the Border system is completed, the Ysleta del Sur Pueblo Tribe and the Kickapoo Tribe will be linked and have seamless interoperability.

Non-Governmental Organizations:

(Criteria 11.4)

Non-governmental organizations are integrated throughout the TxRC structure and in its planning committees. More than 45 EMS organizations and volunteer fire departments actively participated in 24 of the regional focus group sessions. Because of focus group and TxRC participation, their needs are integrated into the regional and urban area concerns, needs and initiatives discussed throughout this document.

State River Authorities: There are several river authorities in Texas, which are non-profit state water and electric utilities that perform certain public safety functions. A representative of the Lower Colorado River Authority is a member of the Executive Committee and another representative co-chairs the Technology Working Group along with a local government representative.

EMS and Trauma Systems: A representative of the East Texas Medical Center (ETMC), a non-profit regional health care and trauma system which provides EMS service to more than 17 counties and close to 17,000 square miles, is a member of the Executive Committee. Another EMS and trauma systems representative co-chairs both the Implementation and Governance Working Groups, and is on the Funding Working Group.

Radio Amateur Civil Emergency Service (RACES): The RACES, is a public service provided by a reserve (volunteer) group of Amateur Radio (Ham Radio) Operators that is administered by local, county and state emergency management agencies, and supported by the Federal Emergency Management Agency (FEMA). The TxRC Steering Committee includes a representative from this group. As a part of the Amateur Radio Service, it provides radio communications for civil-preparedness purposes only, during periods of local, regional or national civil emergencies, including natural disasters such as earthquakes, hurricanes, wildfires, power outages, floods, victim searches, air crashes, and many others. TDEM administers the state RACES program, which is organized by districts throughout the state. TDEM personnel participated in writing this plan.

4 Current Statewide Assessment

4.1 Governance Structure

The Governor appointed the TxRC “as the governing body for the Texas Statewide Communications Interoperability Plan, with the primary purpose of the TxRC to oversee public safety communications interoperability in Texas and the preliminary development and on-going reviews and revisions of the Texas Statewide Communications Interoperability Plan. Responsibility will include, but not be limited to making official recommendations to the Governor of Texas, the Texas Homeland Security Director, and TDEM, concerning public safety communications interoperability, technology, training, exercises, SOPs, implementation and funding of same. The TxRC is comprised of various agencies and associations that represent the local first responder perspective, a critical element that allows the TxRC to serve as a voice for that community.”

Executive Authority (Criteria 4.1)

In 2005, Senate Bill 9 became state law directing the governor to coordinate statewide efforts to achieve radio interoperability. In December 2005, Governor Perry issued the first statewide radio interoperability strategic plan. Prioritizing Homeland Security Funds towards radio interoperability equipment, the governor set January 2007 as a deadline to utilize gateways and patches to achieve interoperability statewide.

The next step along the SAFECOM Interoperability Continuum is Standards-Based Shared Systems. Governor Perry partnered with the TxRC to develop a statewide plan for optimal interoperability — Standards-Based Shared Systems.

This statewide radio interoperability administration authority is cited in Section 421.096 of the Government Code:

Sec. 421.096. INTEROPERABILITY OF RADIO SYSTEMS. The office of the governor shall: (1) develop and administer a strategic plan to design and implement a statewide integrated public safety radio communications system that promotes interoperability within and between local, state, and federal agencies and first responders; (2) develop and administer a plan in accordance with Subdivision (1) to purchase infrastructure equipment for state and local agencies and first responders; (3) advise representatives of entities in this state that are involved in homeland security activities with respect to interoperability; and (4) use appropriated money, including money from relevant federal homeland security grants, for the purposes of designing, implementing, and maintaining a statewide integrated public safety radio communications system.
Sec. 421.097. ASSISTANCE. The office of the governor may consult with a representative of an entity described by Section 421.096(3) to obtain assistance or information necessary for the performance of any duty under this subchapter.

The TxRC is a member of the Governor's First Responder Advisory Council and thus is designated by state law to advise the Governor on relevant Homeland Security issues.

Sec. 421.041. FIRST RESPONDER ADVISORY COUNCIL. (a) The First Responder Advisory Council is a permanent special advisory committee created to advise the governor or the governor's designee on homeland security issues relevant to first responders, radio interoperability, the integration of statewide exercises for hazards, and the related use of available funding. (b) The council is composed of: (1) one representative for each of the following sectors of the state, appointed by the governor or the governor's designee: (A) law enforcement; (B) firefighters; (C) private first responders; and (D) emergency medical services; and (2) other members, as determined by the governor or the governor's designee.

Figure 7, "Organizational Chart for the Governance Body of the Texas SCIP," is the TxRC organizational chart; it identifies the three committees and eight working groups:

Texas Radio Coalition

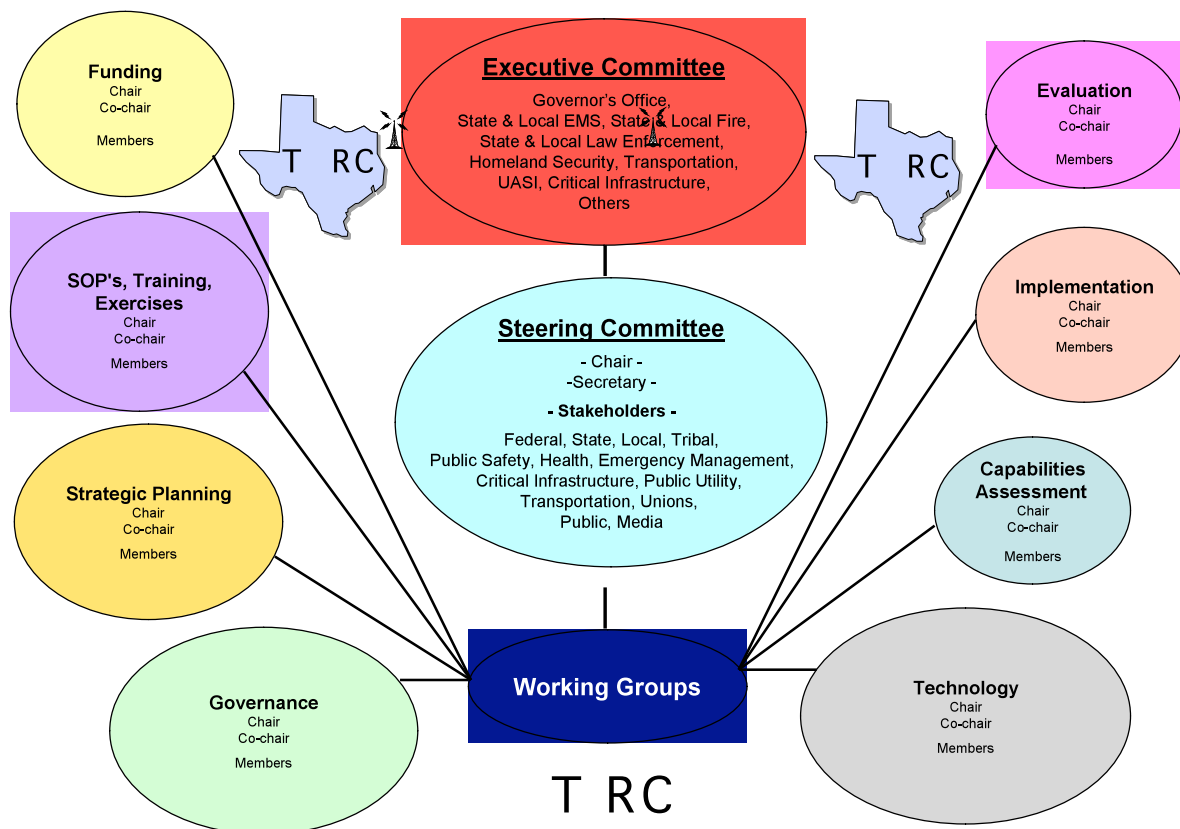


Figure 6 - Organizational Chart for the Governance Body of the Texas SCIP

(Criteria 4.2)

The SCIP-established Governance Structure is made up of the three bodies of the TxRC, they are:

Executive Committee: An oversight body composed of higher-level administrators who will be vested with final decision-making authority by the Governor of Texas. This Committee is selected by the Governor's Office and the Texas Homeland Security Director. The Executive Committee shall:

- Build relationships at the local, state, tribal and Federal levels
- Leverage resources where appropriate
- Educate and update representatives from the Governor's Office and appropriate legislative committees, and the public regarding the state's interoperability work
- Approve any revisions to the SCIP

Steering Committee: This advisory group has regular monthly planning and review meetings, plus Web-based conferences when needed. The group consists of interdisciplinary, inter-jurisdictional representatives from across the state who have a

broad knowledge of wireless communications and hold a formal or informal leadership position within their agency. The Steering Committee will:

- Develop a roadmap for the future and/or a project plan for public safety communications interoperability;
- Establish working groups with appropriate representatives from the public safety community to ensure that technical issues are thoroughly researched;
- Develop outcome-based strategic planning;
- Provide a method to capture lessons learned for future operations;
- Review and recommend goals and objectives to the executive committee;
- Review and recommend short and long-range plans to the executive committee;
- Recommend adoption and modification of operating policies and procedures to the executive committee;
- Translate information and communicate with communities to build support for statewide interoperability efforts;
- Review and make recommendations of revisions to the SCIP; and
- Provide subject matter experts to assist in peer reviews of communications interoperability grant applications to the DPS-SAA.

Working Groups: Temporary, narrowly chartered Working Groups were formed for specific tasks, such as conducting research and collecting data. Current TxRC Working Groups consist of:

- **Governance Group** (Co-chairs: Travis County Emergency Services Wireless Manager, East Texas Medical Center [ETMC] Communications Director)
- **Capabilities Assessment Group** (Co-chairs: UASI Sr. Systems Technologist, Regional Homeland Security Director)
- **Strategic Planning Group** (Co-chairs: City of Austin Wireless Communications Services Manager, City of Bryan Radio System Engineer)
- **Technology Group** (Co-chairs: UASI Sr. Systems Technologist, Utility/Critical Infrastructure Telecommunication Operations Manager)
- **Implementation / Evaluation Group** (Co-chairs: UASI Deputy Director Radio Communications Services, ETMC Communications Director, Sheriff's Office Communications Manager, Sergeant-Sheriff's Office)
- **Standard Operating Procedures / NIMS / Training and Exercises Group** (Co-chairs: UASI POC, Regional Homeland Security Director)
- **Funding Group** (Co-chairs: Director, Border Research and Technology Center; Sheriffs' Association of Texas, County Sheriff)

Charter

(Criteria 4.3)

The Governance Committee finalized the Texas SCIP Governance charter which is based on the SAFECOM/DHS template: "Creating a Charter for a Multi-agency Communications Interoperability Committee." The charter is available for review at <http://txrc.region49.org>

Schedule of Meetings

(Criteria 4.5)

Most Working Groups meet as needed to research, recommend and/or draft language for the SCIP.

At a minimum, the Executive Committee will meet annually. However, the TxRC Steering Committee or a current member of the Executive Committee may call an Executive Committee meeting under special circumstances.

Members of the Governing Body (Criteria 4.4)

Each member of the TxRC is considered a representative of the Governing Body. To review the complete membership, go to <http://txrc.region49.org>.

A list identifying the Executive Committee members, associated agencies/organizations and contact information, is shown in Table 5. Appendix E identifies the Working Group members and their affiliations.

Table 5 - TxRC Executive Committee List

Statewide Communications Interoperability Plan Executive Committee					
Affiliation	Title, Agency / Organization	Area Represented	Name	Address	E-Mail Address
State and Local Elected Officials	Mayor, City of Lubbock	Region 2	The Honorable David A. Miller	P. O. Box 2000, Lubbock, TX 79457	dmiller@mail.ci.lubbock.tx.us
	Chairman, Texas Association of Regional Councils - Mayor, City of Ganado	Statewide & Region 17	The Honorable Clinton Tegeler	P. O. Box 882, Ganado, TX 77962	clintont@gcrpc.org
State and Local Emergency Medical Services	Vice President/COO, East Texas Medical Center EMS	Region 6	Tony Myers	ETMC – EMS, 352 S. Glenwood Blvd. Tyler, TX 75702	tmyers@etmc.org
State and Local Health Officials	Regional Medical Director, DSHS Region 8	State	Sandra Guerra-Cantu, M.D., M.P.H.	7430 Louis Pasteur, San Antonio, TX 78229	sandra.guerra-cantu@dsht.state.tx.us
	Health Director, City of Laredo Health Department	Region 19	Dr. Hector F. Gonzalez, M.D., M.P.H.	2600 Cedar Street, Laredo, TX 78040	hgonzalez@ci.laredo.tx.us
State and Local Fire Response Services	2008 President, Texas Fire Chiefs' Executive Board - Fire Chief, Sugar Land Fire & Rescue	Statewide & Region 16	Dannie Smith	10405 Corporate Drive, Sugar Land, TX 77478	dannie.smith@sugarlandtx.gov

	Fire Chief, City of San Antonio	Region 18	Charles N. Hood	116 Auditorium Cir. San Antonio, Texas 78205	charles.n.hood@sanantonio.gov
State and Local Law Enforcement	Director, Texas Department of Public Safety (DPS)	State	Col. Steve McCraw	Texas DPS 5805 North Lamar Blvd. Austin, TX 78752-4422	steve.mccraw@txdps.state.tx.us
	Sheriff, Hidalgo County	Region 21	Lupe Trevino	711 El Cibolo Road Edinburg, TX 78540	sheriff@hidalgo.org
State and Local Homeland Security Offices	Director, Homeland Security, State of Texas	State	McCraw, Steve	Office of the Governor, 1100 San Jacinto Avenue, Austin, TX 78701	smccraw@governor.state.tx.us
State and Local Transportation Agencies	Executive Director, Texas Department of Transportation	State	Amadeo Saenz	125 E. 11 th Street, Austin, TX 78701	asaenz@dot.state.tx.us
Major UA	CIO, Harris County, Texas	Region 16	Steve Jennings	406 Caroline, 4 th Floor, Houston, TX 77002	steve_jennings@co.harris.tx.us
Critical Infrastructure	Executive Manager of Corporate Services & CIO, Lower Colorado River Authority	Multi-Regional	Christopher Kennedy	3700 Lake Austin Blvd. Austin, TX 78703	ckennedy@lcr.org
Other Organizations	Chief Information Officer, City of Austin	Region 12	Vacant		
Non-Voting Advisors to Executive Committee	Interim Statewide Communications Interoperability Coordinator	State	Mike Simpson	5805 N. Lamar, Austin, TX 78752	mike.simpson@txdps.state.tx.us
	Director, Southwest Public Safety Technology Center, Sheriffs' Association of Texas	Texas Radio Coalition (TxRC) – Technology Advisor	Joe Peters	1601 S. I.H. 35, Austin, TX 78741	joe@txsheriffs.org
	DPS Assistant Director – Law Enforcement Support Division	Texas Radio Coalition (TxRC) Coordinator	Mike Simpson	5805 N. Lamar, Austin, TX 78752	mike.simpson@txdps.state.tx.us

4.1.1 Agreements Relating to Interoperable Communications

(Criteria 4.6)

Jurisdictions in each of the 24 regions have established various MOUs (Interlocal Agreements) for mutual aid/emergency services during disaster situations which include communications. State agencies, tribal governments, organizations, ports, transits and other agencies have also signed communications agreements. The Texas Statewide Interoperability Channel Plan established a Channel Plan MOU specifically for mutual aid communications. Additionally, Texas Senate Bill SB 11, enacted by the 80th Legislature, provided for creation of a statewide mutual aid system agreement which:

- a) Establishes the system to provide integrated statewide aid response capacity between local government entities without a written aid agreement.
- b) Provides that an aid request is considered to be made under the system unless the requesting and responding entities are parties to an agreement in effect when the request is made.
- c) Provides that this system does not affect an agreement between entities in effect on or before the effective date of the legislation or restrict entities in entering into an agreement as otherwise authorized by statute after the effective date.
- d) Provides that, if a request is made between entities that are parties to an agreement, the terms of the agreement control the rights and obligations of the parties.

TDEM administers the system.

4.2 Technology

700 MHz Regional Planning Status as of October 24, 2007 – There are six FCC-designated planning regions in the state of Texas. The FCC has approved the Region 40 (Dallas/Fort Worth area) 700 MHz plan. Region 51, in the Houston area, has completed writing of its plan and has submitted it to their adjoining regions for review and concurrence. The other four regions (49, 50, 52, and 53) are in various stages of writing their plans. However, all plans are affected by the recent FCC decisions that reconfigured the 700 MHz band. The CAPRAD computer-generated nationwide pre-allocation sort of frequencies must be updated utilizing the new frequency configuration; this necessary first step should be completed during the first quarter of 2008. Following this re-sort, Region 40 will have to resubmit their plan to the FCC for a new approval, and the other regions can resume their planning processes. Figure 8, “FCC Designated Regional Planning Areas in Texas,” identifies the location of the six

FCC designated planning regions in Texas.



Figure 7 – FCC Designated Regional Planning Areas in Texas

In addition, incumbent television broadcast operations on channels 62 (Killeen), 65 (El Paso), 67 (Houston area), and 68 (DFW area) will delay full public safety access to all 700 MHz channels in their areas until the mandatory date for analog TV clearance on February 17, 2009.

800 MHz Rebanding Status as of July 7, 2007 – Of the six FCC-designated planning regions in Texas, four of these regions (40, 49, 51, and 52) are included in the Transition Administrator's Wave 2 grouping of regions for rebanding. The other two regions (50 and 53), because of their borders with Mexico, have been included in the Wave 4 grouping of regions for rebanding.

The FCC has also recently postponed the Wave 4 schedule for those licensees within 110 km of the Mexican border, along with those licensees affected by their proximity to border licensees (in general, those licensees within 113 km of the Mexican border), until such time as frequency agreements can be reached with the Mexican government.

Most public safety licensees in the Wave 2 regions are engaged in the planning process; a few have entered negotiations with Sprint Nextel for their Frequency Reconfiguration Agreements. All licensees outside the border area have entered the Transition Administrator's mediation process. To date, no actual physical rebanding work has been started for NPSPAC licensees in Texas.

Designated interoperability (shared) channels – The State of Texas has licensed frequencies for Mutual Aid channels, listed in the Texas Statewide Interoperability Channel Plan (TSICP), for all agencies providing public safety services in the state. Use of the interoperability channels shall be prioritized:

1. Emergency or urgent operation involving imminent danger to life or property
2. Disaster or extreme emergency operation requiring extensive interoperability and inter-agency communications
3. Special event, generally of a pre-planned nature
4. Joint training exercises
5. Inter-agency and en-route communications in accordance with local and regional policies and procedures

The TSICP and Channel Plan MOU require agencies to:

- Participate in regional communications planning (generally arranged by regional Council of Governments) that provides for regional radio communications interoperability.
- Manage use of the interoperability frequencies by its employees, ensuring compliance with the TSICP and Federal/state/local laws, ordinances and rules.
- Use the interoperability frequencies authorized hereby for their intended purpose of coordination between emergency response agencies and resources. Such coordination may occur during interagency operations, en-route travel, or on-incident.
- Use the interoperability frequencies for operational and en-route communications in accordance with local and regional policies and procedures.
- Use the interoperability frequencies for on-incident communications in accordance with the Incident Communications Plan established by the on-scene Incident Commander.
- Prioritize use of the interoperability frequencies:
 - Emergency or urgent operation involving imminent danger to life or property
 - Disaster or extreme emergency operation requiring extensive interoperability and inter-agency communications
 - Special event, generally of a pre-planned nature
 - Joint training exercises
 - Inter-agency and en route communications
- Implement radio communications procedures consistent with the NIMS and ICS including:
 - Use "plain language" without 10-codes or agency-specific codes/jargon.

- Use the calling protocol: "Agency-Unit #, this is Agency-Unit #," rather than "Unit # to Unit #." Examples: "Bryan EMS 1605, this is Tyler Fire 2102," or "Incident Command, this is DPS 505."
- Ensure that mobile, portable and temporary base radios intended for use by agency leadership (officers) are configured with the appropriate in-band interoperability frequencies as found in the TSICP. This means that, as a minimum, the interoperable frequencies would be added to the day-to-day frequencies used by that entity.

The complete TSICP with conditions for use and specific guidelines for each frequency band, the Channel Plan MOU and the Texas Regional Interoperability Plans can be found at <http://tsiec.region49.org>. Additional interoperability channels specific to a region can be found in the CASM Web-based tool provided by the DHS Interoperable Communications Technical Assistance Program.

Please refer to the TSICP for specific frequencies, tones, labels and designated uses.

4.2.1 Statewide Capabilities Assessment

(Criteria 5.1)

The size of Texas and the number of agencies that operate on disparate systems make a statewide communications assessment a very challenging task. To accomplish this, Texas chose to use the CASM Web-based tool. CASM is being utilized to map the existing communications assets, mutual aid and interoperability capability, coverage and resources. As a result, this information will identify the communications and mutual aid gaps across the state, and progress along the SAFECOM Continuum. El Paso has developed a "CASM Help" program to assist with and speed-up the data entry function. The El Paso CASM Help program will be made available to all agencies via the TxRC Web site

CASM Status

The UASI cities, regional systems and the state agencies are currently entering their communications assets into CASM. The Regional Councils of Governments and the state will assist local public safety agencies identify and list both voice and data communications assets and management systems. In order to be eligible for funding, a jurisdiction must commit to provide the information necessary to complete CASM for their jurisdiction and provide regular updates.

The Technology Working Group will use the information provided by CASM to develop regional migration strategies. As the CASM information is evaluated, the Technology Group will draft specifications for voice and data systems reliability, redundancy and replacement.

Identifying gaps in communications: To quickly identify the most prominent gaps in communications interoperability, public safety agencies were asked to complete a

statewide communication capabilities survey. This survey was distributed to the Emergency Management Coordinators of every county with the assistance of the Regional Councils of Governments. Emergency Managers collaborated with public safety agencies to complete the surveys in a timely manner. The assessment included, but was not limited to the following:

- Types of primary voice radio systems
- Frequency assignments of each emergency responder organization
- Current methods of interoperability (console patch, gateways, etc.)
- Current mobile data systems in service
- Current data and incident management systems
- Current SOPs and training availability
- Use of the State Interoperability Channel Plan

Section 4.2.2 lists and provides some information on most of the regional and multiple agency voice radio systems in Texas. The Technology Working Group will be gathering information on existing data systems and incident management systems as they complete the development of the strategy for statewide data interoperability.

4.2.2 Systems, Types and Agencies

48 Texas radio systems used by public safety agencies are listed on the following pages. In addition to the systems listed are another estimated 200+ city and/or county radio systems. The systems are listed by category: regional P25 systems, other multiple agency P25 systems or upgrading to P25, wide-area non-P25 systems and other large conventional systems. This information shows the great number and various types of individual radio systems across Texas and demonstrates the importance of regional and statewide interoperability. The TxRC has chosen to use the CASM tool for the statewide capabilities assessment. Details on each of the systems listed below can be accessed through CASM.

There are five large regional public safety systems in the state of Texas that are P25 compliant, or are migrating to P25. They are:

1. The Harris County/ Houston-Galveston Area Council (H-GAC) Regional Radio System, which supports 515 agencies and more than 33,000 users covering over 10,000 square miles of that region. They are in the process of migrating to Standards-based P25 and working with other agencies to collaborate on a single system to cover East Texas with the hope to aid Public safety agencies in the evacuation process.
2. The East Texas Medical Center (ETMC) System covers 15 counties, providing primary communications for 250 local and volunteer, non-governmental public safety agencies and 7,000 users. The ETMC operates an 800 MHz analog system through rural counties in east Texas. Due to the age of the equipment, the system is no longer supported by the vendor and must be transitioned to P25. Financial assistance is needed since the

transition will be a great monetary burden to all, especially the volunteer public safety agencies. The new ETMC sites will tie into the Harris County/H-GAC Regional P25 System extending that coverage from Galveston to Dallas. The joining of the systems will create a standards-based system that uses 700/800 MHz covering 25 counties.

3. The Austin-Travis County Regional Radio System shares its controller with the newly upgraded Williamson County system. Together they serve more than 100 agencies and 13,000 users. Future projects will connect agency-owned systems in other neighboring counties to the Austin-Travis County system, with the goal of creating a shared standards-based system that covers the entire 10-county planning region.
4. The Middle Rio Grande Development Council Regional Radio System is a multi-phase VHF P25 trunking system supporting the multi-agency and multi-discipline jurisdictions along the Texas-Mexico border area which includes: 9 counties, 51 membership agencies, the Kickapoo Traditional Tribe of Texas, plus state and Federal users.
5. The City of El Paso's 800 MHz analog system is migrating to a P25 standards-based voice radio system. This is a multi-phased, hybrid 800 MHz/VHF trunking system that supports the multi-agency and multi-discipline jurisdictions along the Texas-Mexico border areas, including the Ysleta del Sur Pueblo. The El Paso UASI/Region 8 P25 Interoperability Radio System covers El Paso County with future plans to interface with the P25 Border Communications Project (Texas and New Mexico).

Examples of other communications systems that are currently P25 or upgrading to P25 include:

1. The City of Laredo with a three-site simulcast system and 1,700 public safety and city department users.
2. Excel Energy is installing 32 sites in the Panhandle area.
3. Parker County currently has a four-site simulcast P25, VHF trunking system under construction that will support 27 agencies and 1,200 users. The new VHF system will integrate an existing 800 MHz system for increased regional interoperability.
4. Montgomery County is in the RFP process to acquire a P25, 800 MHz trunked system, which will integrate into the Harris County Regional Radio System.
5. The City of Houston is in the RFI/RFP process to acquire a P25, 700 MHz trunked system, which will integrate into Harris County Regional Radio System.
6. The City of Bryan currently uses a mixed mode, 800 MHz trunked system. It has partnered with the City of College Station, Brazos County, Texas A&M University, the City of Brenham, and Washington County, to seek funding for a P25, 700/800 MHz, shared system that will encompass the entire area, and be expandable into the remaining five counties of the Brazos Valley COG. This system will be linked to the adjoining regional shared systems of the

- Harris County Regional Radio System and the Austin-Travis County/Williamson County Regional Radio System.
7. City of Odessa transitioned to 800 MHz P25 in September 2007.
 8. Panhandle Regional Planning Commission is implementing a multi-year transition to VHF P25 for 205 response agencies in the region's 26 counties.

Examples of other wide-area or large non-P25 systems across the state include:

1. Lower Colorado River Authority: LCRA has one of the largest 900 MHz trunked systems in the state, covering 37,000 square miles and 54 counties. Public safety, transportation, school districts, municipal city and county governments, and state agencies use the LCRA system, which makes it difficult for these agencies to interoperate with users in the VHF, UHF and 800 MHz bands. Gateway devices, console patches and other solutions to the problem are costly to implement due to the size of the LCRA system.
2. City of San Antonio, Bexar County, has a large, digital 800 MHz trunked system that primarily covers Bexar County but also provides limited coverage in Medina, Banderita, Kendall, Comal, Wilson and Atascosa counties, serving more than 26 agencies and 71,00 users.
3. The City of Beaumont, Jefferson County has a large simulcast system that covers Hardin County.
4. The City of El Paso is using an analog, 800 MHz four-site simulcast trunked system.
5. Ysleta del Sur Pueblo is using an analog, 800 MHz conventional system.
6. The City of Wichita Falls is using a digital, 800 MHz trunked system.
7. The City of Lubbock is using an analog, non-P25, 800 MHz trunked system.
8. The City of San Angelo is using an analog, non-P25, 800 MHz trunked system.
9. The City of Waco is using an analog, 800 MHz trunked system.
10. Bell County is using an analog, 800 MHz trunked system.
11. The City of Midland is using an analog, 800 MHz trunked system.
12. Lee County is using an analog, 800 MHz trunked system.
13. Caldwell County is using an analog, 800 MHz trunked system.
14. The City of Arlington is using an analog, 800 MHz trunked system.
15. The City of Fort Worth is using an analog, 800 MHz trunked system.
16. The City of Irving is using an analog, 800 MHz trunked system.
17. The City of Denton is using an analog, 800 MHz trunked system.
18. The City of Plano is using an analog, 800 MHz trunked system.
19. The City of Mesquite is using an analog, 800 MHz trunked system.
20. The City of Abilene is using an analog, 800 MHz trunked system.
21. The City of Corpus Christi is using an analog, 800 MHz trunked system.
22. The City of Richardson is using an analog, 800 MHz trunked system.
23. The Cities of Bedford, Euless, Colleyville, Southlake, Keller, and Grapevine have a coalition using an analog, 800 MHz trunked system.
24. Collin County is using an analog, 800 MHz trunked system.
25. Denton County is using an analog, 800 MHz trunked system.

26. The City of Lewisville is using an analog, 800 MHz trunked system.
27. The City of Carrollton is using an analog, 800 MHz trunked system.
28. The City of Garland is using an analog, 800 MHz trunked system.
29. Johnson County is installing a non-P25 analog VHF trunked system.
30. The City of Rockwall is using a non-P25 analog UHF trunked system.

Examples of other conventional, single and multi-site systems across the state include but are not limited to:

1. Texas Department of Transportation – more than 300 repeaters and 15,000 users
2. Texas Department of Public Safety – more than 100 repeaters and 10,000 users
3. Texas Department of Criminal Justice – 125 sites and 18,000 users
4. Texas Parks and Wildlife – 118 sites and 3,000 users
5. Texas Youth Commission – 15 campuses and 2,500 users
6. Texas Forest Service – 60 sites with 6,000 users
7. City of Dallas – more than 20,000 users

4.2.3 Continued Support of Legacy Systems and Developing Interfaces Among Disparate Systems While Migrating to Newer Technologies (Criteria 5.2, 5.2.1)

It will be a challenge to support existing legacy systems while migrating to new standards-based systems. Strategies entail migrating to dual-mode subscriber equipment that will work on both legacy systems and new, standards-based systems. During this transition, every effort will be made to tie existing legacy infrastructure into the new standards-based, P25 systems to help ensure smooth transitions. The initiatives listed below will help ensure continued operability and interoperability during this multi-year transition.

1. Improve coverage to existing systems where necessary by incorporating multi-casting and/or receiver voting, based on site coverage studies.
2. Improve regional mutual aid communications infrastructure where necessary utilizing the TSICP.
3. Use patching and gateway device technologies to connect disparate systems and incorporate them into the new statewide communications architecture, while they are migrated to a P25 standards-based solution.
4. Design regional systems that will integrate multi-jurisdictional and multi-disciplinary service areas, and be interoperable with adjacent regions.
5. Leverage existing state infrastructure assets where practical.
6. Incorporate and promote the use of newer technologies that will allow tying legacy systems into newer P25 switches where possible.
7. Stress to vendors the importance of backward-compatibility, while moving forward with the P25 standards-based solution for voice communications.

8. Urge immediate vendor development of software-defined, cognitive portable and mobile subscriber units, backward-compatible to existing analog and digital RF land-mobile technologies in the VHF, UHF, 700 MHz, 800 MHz, and 900 MHz bands, wide-band and narrow band, as well as forward-compatibility with the P25 suite of standards.

Figure 9, the “TEX-AN 2000 IP Network,” provides an example of how existing architecture can be utilized as a backbone infrastructure to prepare for migration onto a common standards-based operating system.

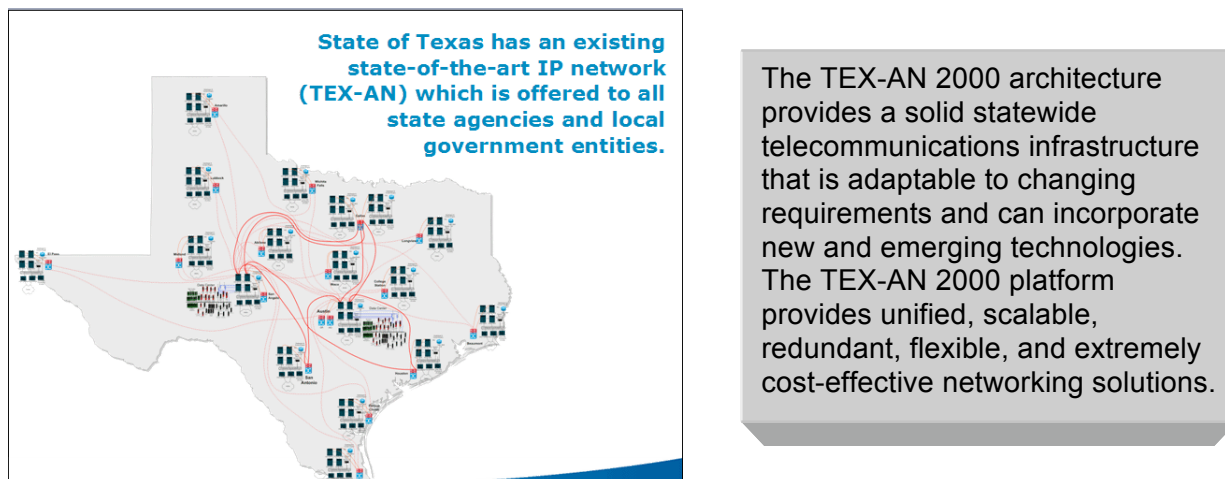


Figure 8 - TEX-AN 2000 IP Network

4.3 Standard Operating Procedures

4.3.1 Current Local, Regional, and State Operating Procedures that Support Interoperability

(Criteria 6.1)

In 2005, all 24 state planning regions were directed to assess regional communications interoperability and submit a Regional Interoperability Plan for approval by the Texas Office of Homeland Security and the Technical Advisory Group.

City, county and inter-jurisdictional emergency management programs were required to update their Emergency Management Plans, including Annex B-Communications, to be consistent with NIMS and the National Response Plan, the TSICP and MOU, and current state planning standards for various emergency functions. Copies of all local plans and annexes are submitted to the TDEM, which reviews them for compliance. Having a current local plan approved by the state is a requirement for receiving Federal or state homeland security or emergency management grants. State agencies were directed to work with each region to achieve and ensure communications

interoperability.¹² Most local government communications operations are guided by this combination of plans, the communications annexes to those plans, and local and regional communications interoperability operating procedures. However, some UASI areas and densely populated cities and counties have structured SOPs for communications interoperability.

The Harris County Regional Radio System has “*The Book of Knowledge*,” which includes the SOP for emergency communications. Per the SOP, interoperability with the VHF Federal agency (Houston) system is tested weekly on every Thursday shift, along with interoperability with other agencies and systems.

Three UASI areas have participated in the SAFECOM TICP and have implemented and tested their plans. Each UA TICP outlines a SOP that includes NIMS requirements.

TDEM maintains the State of Texas Emergency Management Plan, including its warning and communications annexes and other specialized state plans.

Standard procedures for *Emergency Communications Operations* are specifically addressed in the Department of Public Safety Texas Highway Patrol Division Manual. DPS requires communications personnel to train quarterly on these emergency procedures. Most other state agencies have similar documented procedures.

The state is sponsoring a communications interoperability exercise in each of the 24 regions of the state to test equipment and procedures. These exercises require demonstration of interoperable communication procedures and capabilities between multiple agencies during a simulated emergency. . It should also be noted that the DPS-SAA, which administers homeland security grants, tests interoperable communications capabilities during its audit and compliance inspections.

4.3.2 The Process to Develop, Manage, Maintain, Upgrade and Communicate SOPs

(Criteria 6.2)

The TxRC SOP and Governance Working Groups drafted a regional template for integrated state and local agency SOPs for interoperable communications. Each region and state agency completed these SOPs with specific regional requirements and capabilities and submitted the SOPs in 2010. The SAFECOM *Writing Guide for Standard Operating Procedures* and NIMS communications requirements were used as the basis of the template. Each regional SOP named a lead agency that will be

¹² Texas Radio Communications Interoperability Plan,
<http://www.txdps.state.tx.us/dem/documents/texasradiocomminteroperabilityplan.doc>

responsible for the management, maintenance and upgrade of the SOP. SOPs will be revised when major changes are needed due to enhancements or other changes in the communications environment. SOPs will be made available to appropriate individuals for training purposes and to influence interoperability efforts. Each lead agency will provide the appropriate COG, the Emergency Management Coordinator of each County within the region, the TxRC and Emergency Management Council with electronic copies of the regional interoperable communications SOP for review on an annual basis. Each COG and/or County Emergency Management Coordinator will provide all regional public safety agencies and personnel copies of the SOP and provide ongoing access to the SOPs for training purposes.

4.3.3 Agencies Developing and Complying with SOPs (Criteria 6.3)

The TxRC Governance and SOP Working Groups providing input and creating the template will include, but not be limited to: City and County Emergency Management Coordinators, local and tribal law enforcement, fire departments, volunteer fire departments, EMS organizations, UASI representatives, trauma centers, Texas DPS, Texas DOT and Texas Military Forces. Each COG will identify the state and local agencies within the region to adapt the SOP to regional requirements. The SOP will follow the guidelines established by NIMS for Incident Command, specifically, all state and local public safety agencies and all agencies responding to an incident within a region will be expected to comply with the regional SOP.

4.3.4 NIMS Compliant SOPs (Criteria 6.4)

Governor Perry signed Executive Order RP40¹³ on February 23, 2005, which states the following:

“It is necessary and desirable that all Federal, State, local and tribal emergency agencies and personnel coordinate their efforts to effectively and efficiently provide the highest levels of incident management; and

to facilitate the most efficient and effective incident management, it is critical that Federal, State, local and tribal organizations utilize standardized terminology, standardized organizational structures, interoperable communications, consolidated action plans, unified command structures, uniform personnel qualification standards, uniform standards for planning, training, and exercising, comprehensive resource management and designated incident facilities during emergencies or disasters; and

¹³ Executive Order RP40, <http://governor.state.tx.us/news/executive-order/3690/>

The N.I.M.S. standardized procedures for managing personnel, communications, facilities and resources will improve the State's ability to utilize Federal funding to enhance local and state agency readiness, maintain first responder safety, and streamline incident management processes; and

The National Incident Management System (N.I.M.S.) is hereby declared the State standard for incident management.”

The DPS-SAA requires agencies to certify compliance with NIMS to be eligible for Federal grant funding. (Also see Section 5.5 NIMS Compliance.)

4.4 Training and Exercise Plan

Statewide Training and Exercise Programs

Criteria 7.1, 7.2, 7.3

Practical and regular training and drills are essential at both the basic and in-service levels to accustom users with operational requirements during disaster situations. Such training is ineffective if it is restricted to “push this button to talk on Talk Group A.” The incident command system procedures should drive the communications training, and a sound chain of command for communications must be established and practiced.

Texas plans to implement a statewide training program for interoperable communications. This effort will include a combination of:

- (1) Incorporating interoperable communications in standardized training for emergency responders provided by public safety organizations. The Texas Commission on Fire Protection establishes fire service standards and testing and certification requirements. TEEX Fire Services (a component of Texas A&M University), the Northeast Texas Fire/EMS Training Academy, and various colleges offer firefighter training programs, as well as emergency medical services training and public works response training. The Texas Commission on Law Enforcement Standards and Education (TCLEOSE) establishes training standards for law enforcement personnel and the Texas Department of State Health Services establishes training requirements for EMS personnel. Many local departments or districts provide basic classroom training to meet police, fire and EMS training requirements.
- (2) Providing stand alone single discipline and multi-discipline interoperable communications training courses through existing state and regional training academies and organizations. Most of the state’s planning regions and some major cities have training academies that already provide both general and specialized training programs in courses such as Intermediate Incident Command (ICS-300) and Advanced Incident Command (ICS-400) and Homeland Security table-top exercises.

- (3) Providing a basic multi-disciplinary interoperable communications course on-line that can be accessed by first responders, the large number of volunteer public safety personnel in the state, as well as industry and non-governmental organizations who find it difficult to participate in face-to-face training courses.
- (4) If necessary, adding interoperable communications courses to the extensive emergency preparedness, response and recovery curriculum offered statewide by TDEM at no cost to local government, tribal, and state agency personnel, and members of volunteer groups active in disasters

TDEM is also conducting regional exercises to test regional plans and interoperable communications equipment and identify needed improvements in plans, procedures, equipment, and training. These exercises include responders from state, local, tribal and Federal agencies. Eight regions have exercised their plans and equipment to date, and additional exercises are planned for the fall of 2007 and early 2008. After-Action Reports are produced for each exercise and participating agencies are responsible for developing and implementing Improvement Plans to resolve deficiencies

Texas has a number of specialized communications teams, listed below, and will be developing more.

- (1) The Texas Highway Patrol Division of DPS has three emergency response teams, called Communications Emergency Operations Teams (CEOT), with each team consisting of six members. These teams are strategically placed throughout the state. Members of CEOT are required to complete 40 hours of *basic communications operations* training and participate quarterly in *emergency communications field operations training* (with interoperable communications equipment). Most other state public safety agencies have similar programs.
- (2) The Texas Forest Service (TFS) has several Communications Unit Leaders who completed the National Wildfire Coordinating Group (NWCG) Communications Unit Leader Training (24-hour S-358 course) and then participated in actual incident and exercises to complete the accompanying field task requirements which demonstrate proficiency in the subject and to gain experience. The TFS is expected to add the COM-L training to the curriculum available at future Wildfire and Incident Management Academies. This would not only allow a person to take the training but to “shadow” someone in that position, as the academies operate as if the participants were responding to a Type II incident with all of the key ICS positions filled.
- (3) Additionally, TFS received a grant to organize and train five regional incident management teams staffed by local and regional volunteers in the last year and that effort is nearing completion. TFS is expected to receive funding to organize and train another three teams. TFS intends to staff each team with qualified communications personnel who are experienced in multi-level, multi-agency operations.

4.5 Usage

*The system that works best in an emergency is the one that is used on a daily basis. Users will follow their instincts when confronted with a stressful situation, and those instincts are honed by daily use and exercise of the communications system. Construction of a mutual aid system on an ad-hoc basis does not provide the instinctive reliability as that realized by daily use.*¹⁴

(Criteria 8.1)

Most major regional systems provide both a primary communications capability and seamless interoperability within the region. However, there are users who are unfamiliar with all of the capabilities of their individual radios or dispatch consoles. The tool to be used for providing a statewide database for existing radio systems is CASM. As the communications assessment information becomes available via CASM, programs will be developed to provide users with "how-to" guides for specific radio equipment. Along with equipment investments, vendors will be encouraged to provide electronic copies of detailed training materials and programs for mass distribution and local customization.

Regular usage of interoperable communications procedures and equipment will be required and made uncomplicated by providing templates for simple drills that exercise capabilities, e.g., console patches, gateways. Communications personnel will be expected to voice-test calling channels with subscribers in the field regularly. Remote enabling/disabling of mutual aid repeaters as well as simple console patches (for example, 8TAC-91 patched to a law enforcement sector channel) likewise will be practiced regularly.

Communications personnel training curricula will be modified to include interoperability training modules, so that new dispatchers are schooled in these fundamental procedures prior to assuming their duties on live systems. SOPs will be updated to reflect the training for primary and back-up communication unit leaders. First responders likewise will be provided detailed instruction on radio interoperability as well as regular hands-on "refresh" training.

Regional SOPs will be available to practitioners via a Web site. Clear processes will be implemented to test and exercise SOPs on a routine and cost-efficient basis.

¹⁴ Emergency Response Council "Nationwide Plan for Interoperable Communications"
<http://www.nga.org/Files/pdf/07ERCINTEROPPLAN.PDF>

5 Strategy

Texas' long-term goal of is to reach the optimal level of interoperability through a “high degree of leadership, planning, and collaboration among areas with commitment to and investment in sustainability of systems and documentation,” as stated in Figure 10, the “SAFECOM Interoperability Continuum.”



Homeland
Security

Interoperability Continuum

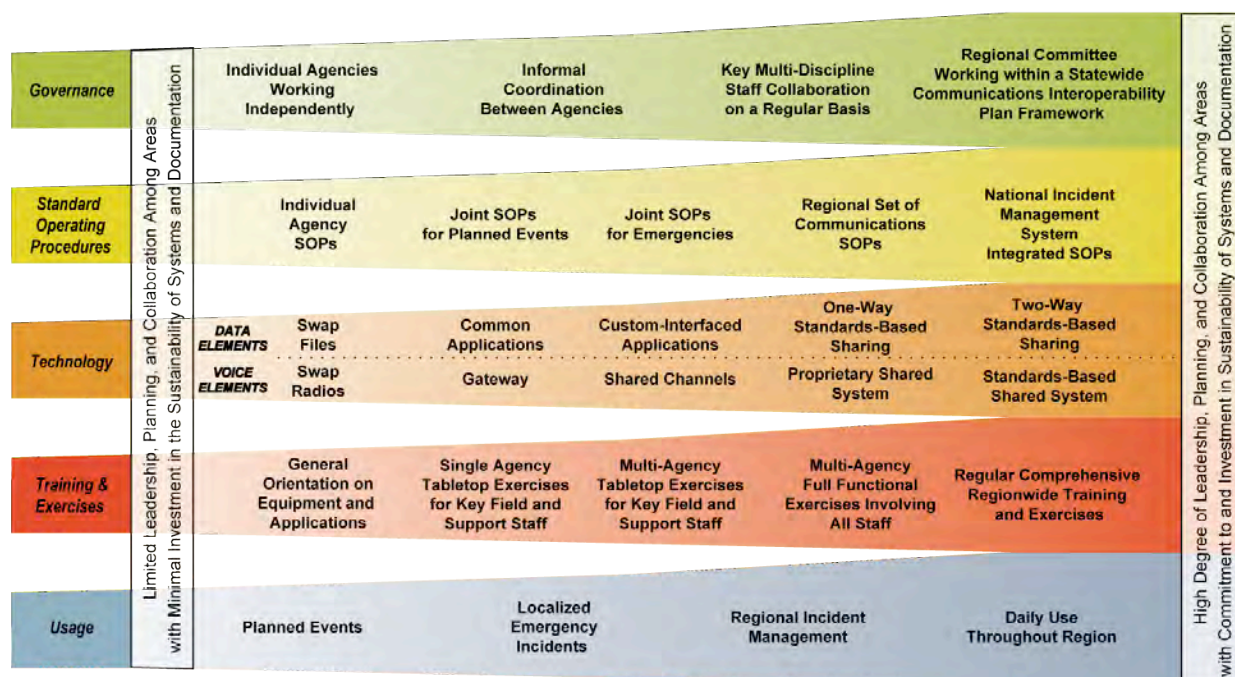


Figure 9 - SAFECOM Interoperability Continuum

Texas first responders identified five major problems with public safety communications. Please see **Current Communications Interoperability Environment, Problems and Possible Solutions**, in Section 2.1.3, for complete details on specific communications gaps in interoperability. A short summary of problems and solutions are listed below:

- Lack of training and education on current interoperability capabilities and structure — This directly relates to two elements of the Interoperability Continuum: SOPs and Training and Exercises.
 - Solution: Provide regional, NIMS-integrated SOPs to practitioners along with regular comprehensive regional training and exercises.

- No available channels in a specific radio band in many major urban and rural areas — This falls under the Governance and Technology elements of the Continuum.
 - Solution: Regional collaboration on shared use of radio frequencies, teaming with public safety organizations to gain additional spectrum for public safety, and upgrading systems to spectrum efficient solutions.
- No operability in parts of Texas — This also falls under Governance.
 - Solution: Where geographically unable to provide communications infrastructure, expand regional collaboration in the use of radio communications vans or other type of portable communications devices; or, if geographically able, provide communications infrastructure -- and identify funding for solutions.
- Aged equipment — This problem falls under the Technology element of the Interoperability Continuum.
 - Solution: Provide a migration plan to replace and upgrade equipment and identify sources for maintenance and repairs.
- Minimum interoperability — This is linked to both the SOP and Usage elements of the SAFECOM Continuum.
 - Solution: Ensure, where applicable, that SOPs are available to both dispatch and field practitioners and include operations of radio patches and gateways; make use of interoperability equipment on a daily basis.

5.1 Interoperability

(Criteria 2.1)

During the focus group sessions, the future vision of regional and statewide public safety interoperability was discussed. The TxRC captured this information and created Vision and Mission Statements, which were modified and approved by the participants at the Strategic Planning Session.

VISION STATEMENT

By the end of 2015, provide all public safety and critical infrastructure responders at all levels of government – including local, county, special districts, tribal, state and Federal – with the highest level of real-time direct interoperable voice and data radio communications utilizing Standards-Based Systems.

In order to achieve the vision of Standards-Based Systems by the end of 2015, the Texas SCIP must establish specific technology solutions for communications interoperability between public safety agencies.

Texas has adopted the “Project 25

Suite of Standards” as the technology solution and long-term interoperability goal for voice public safety agency communications.

Standards

Land Mobile Radio (LMR) Systems

When procuring equipment for communication system development and expansion, a standards-based approach should be used to begin migration to multi-jurisdictional and multi-disciplinary interoperability. Specifically, all new digital voice systems should be compliant with the P25 suite of standards. This recommendation is intended for government-owned or leased digital land mobile public safety radio equipment. Its purpose is to make sure that such equipment or systems are capable of interoperating with other digital emergency response land mobile equipment or systems. It is not intended to apply to commercial services that offer other types of interoperability solutions. Further, it does not exclude any application if the application demonstrates that the system or equipment being proposed will lead to enhanced interoperability.

With input from the user community, these standards have been developed to allow for backward compatibility with existing digital and analog systems and to provide for interoperability in future systems. The FCC has chosen the P25 suite of standards for voice and low-to-moderate speed data interoperability in the new nationwide 700 MHz frequency band. The Integrated Wireless Network (IWN) of the U.S. Homeland Security, Justice, and Treasury Departments has chosen the P25 suite of standards for their new radio equipment. The U.S. Department of Defense has also endorsed P25 for new LMR systems.

This guidance does not preclude funding of non-P25 equipment when there are compelling reasons for using other solutions. However, the first priority of Federal funding (subject to the statutory authority of the grantor agency or the objectives of the grant program if the applicant is seeking Federal grant funding) for improving public safety communications is to provide basic, operable communications within a department with safety as the overriding consideration. Funding requests by agencies to replace or add radio equipment to an existing non-P25 system (i.e., procurement of new portables on an existing analog system) will be considered if there is an explanation as to how their radio selection will allow for improving interoperability or eventual migration to interoperable systems. Absent these compelling reasons, SAFECOM intends that P25 equipment will be preferred for LMR systems to which the standard applies.

Beginning in FY 2007, grant applicants purchasing P25 equipment must obtain documented evidence from the manufacturer that the equipment has been tested to and passed all of the applicable, published, normative P25 compliance assessment test procedures for performance, conformance, and interoperability as defined in the “Grant

Guidance – Project 25 Explanatory Addenda,” which can be found at www.safecomprogram.gov/SAFECON/grant/default.htm.

Applicable test procedures include tests of all mandatory features and standard options installed in the product contemplated for purchase. This documentation shall be in the form of a Supplier's Declaration of Compliance (SDoC) prepared in accordance with ISO/IEC 17050-1. Further, the relevant compliance assessment test reports which form the basis for the SDoC shall be prepared in accordance with the NIST publication: “Procedures and General Requirements for Compliance Assessment of Project 25 Land Mobile Radio Equipment.”

Data-Related Information Sharing Systems

To support homeland security, emergency responses, and justice information sharing, grant applicants should use the latest NIEM specifications and guidelines on the use of XML, as follows:

31. Use NIEM 1.0 or later for information sharing in production systems. NIEM 1.0 (beta) was released in June 2006; the full production version is scheduled for October 2006.
32. Until the production release of NIEM 1.0, the latest NIEM beta specifications and guidance should be used only for pilots and prototype systems.

Additional information about the required use of NIEM specifications and guidelines is available at <http://www.niem.gov>. If there is any question or comment about the use of NIEM specifications and guidelines, please submit it to information@niem.gov.

Further, any systems, developmental activities, or services procured with grant funding involving information relating to emergency response, including the exchange of incident management or alerts, should comply with the OASIS EDXL standards. Compliance should include the Common Alerting Protocol (CAP), version 1.1 or latest version, and the EDXL Distribution Element (DE), version 1.0 or latest version. More information on these standards can be found at <http://www.oasis-open.org>.

This guidance does not preclude funding of non-NIEM or non-OASIS EDXL-compliant systems, when there are compelling reasons for using other solutions. Absent such compelling reasons, the NIEM and OASIS EDXL standards identified above are the preferred standards.

Functional Requirements

When planning for the development of communications systems and looking to ensure both operability and interoperability, emergency responders should employ a standards-based network of networks approach. When procuring voice and data communications equipment, emergency responders should seek equipment that supports specific functional requirements, or equipment capabilities. A list of functional

requirements for various components of voice and data communications systems is included in Appendix A. These requirements outline the minimum capabilities that equipment should have for effective interoperable procurement selections¹⁵.

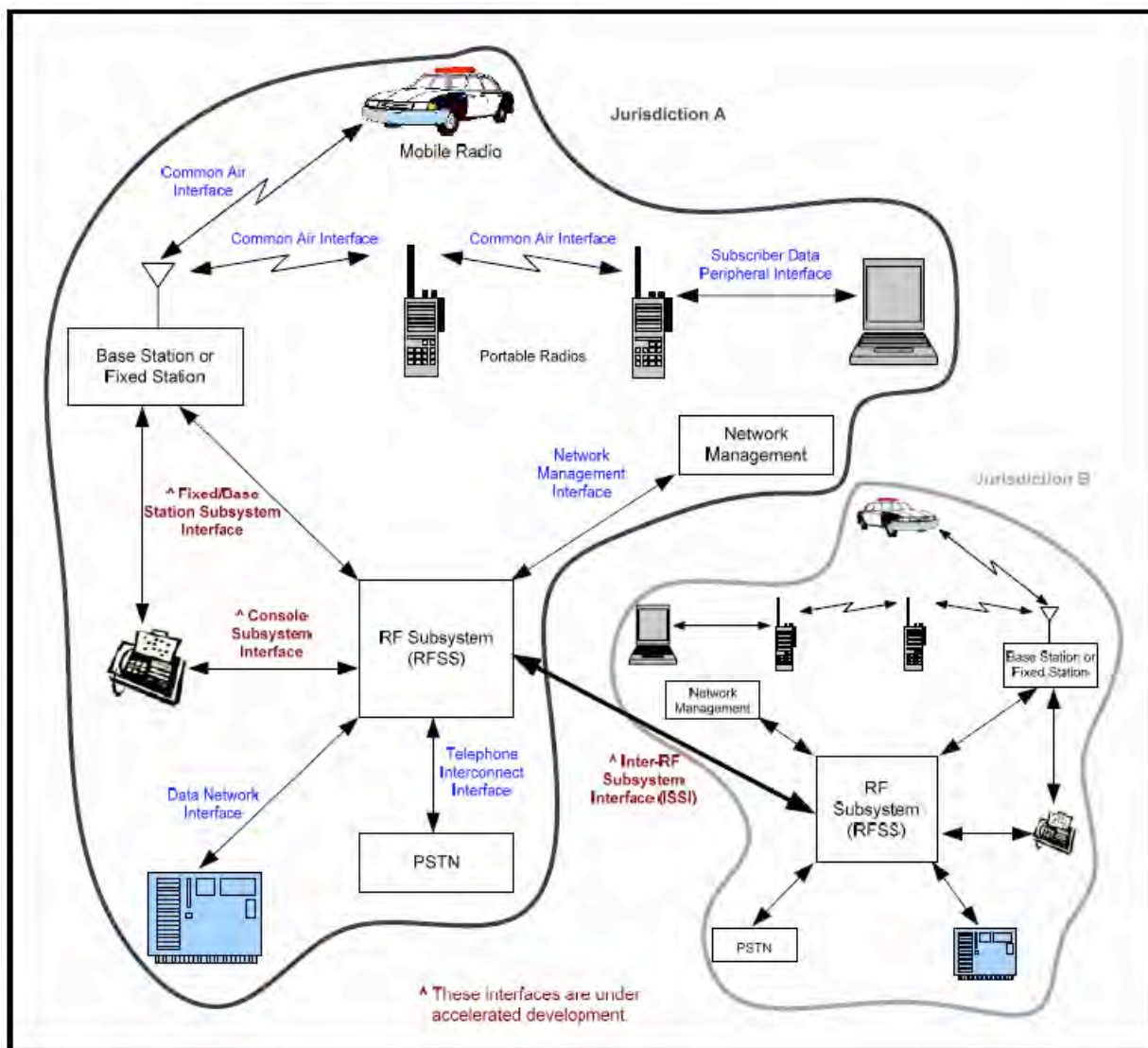


Figure 10 - P25 Connectivity and Interoperability

5.2 Mission

The group referenced the five elements of the SAFECOM Interoperability Continuum to design the Mission Statement. The Working Groups will assist each region in

¹⁵ Recommended Federal Grant Guidance, Emergency Response Communications and Interoperability Grants, Fiscal Year (FY) 2007, www.safecomprogram.gov.

identifying where they are on the Continuum and provide assistance to reach the next steps along each lane to achieve statewide interoperability.

MISSION STATEMENT: Achieve the optimal level of voice and data communications interoperability, including growth, sustainability and documentation of systems, through a high degree of leadership, planning and collaboration with commitment to and investment in:

- Building a Governance Structure of Regional Committees Working with a Statewide Interoperability Committee
- Developing SOPs where the National Incident Management System is Integrated into the SOPs
- Expanding and/or Implementing Technology for Regional Shared Systems
- Requiring Training and Exercises that are Regular comprehensive and Regional
- Encouraging Daily Use of interoperable communications systems throughout the regions

*Regional shared systems are the optimal solution to interoperability. Standards-based shared systems promote competitive procurement and a wide selection of products to meet specific user needs. With proper planning of the talk group architecture, interoperability is provided as a byproduct of system design, creating an optimal technology solution.*¹⁶ Equipment acquisition decisions should be in support of long-term interoperability by building upon or accelerating long-term strategies and efforts.

5.3 Goals and Objectives

(Criteria 2.1)

At the annual Strategic Planning Conference, the SCIP stakeholders continue to update the SCIP goals to better address specific challenges throughout the state. Because of the importance of each individual goal, the stakeholders decided not to prioritize one goal over another. The definition of SCIP stakeholders is: individuals, groups, or organizations that are actively involved in the project, are directly affected by its outcome, or can influence its outcome. A stakeholder has an interest in the project based on expectation of value or benefit to be received. Table 6 specifically identifies the Texas SCIP Stakeholders.

¹⁶ SAFECOM Interoperability Continuum; www.safecomprogram.gov.

Table 6 - SCIP Stakeholders

Stakeholder	Involvement, Value/Benefit or Influence
Texas Radio Coalition	Primary involvement stakeholders actively involved representing governmental communications users, with primary ability to influence the outcome.
Texas Homeland Security Office and Texas Governors Division of Emergency Management	Primary supporting stakeholders and champions, with direct ability to influence the outcome.
Governor	Supporting stakeholder and champion, with direct ability to influence the outcome.
Texas Legislators	Supporting stakeholders, with direct ability to influence the outcome.
First-Responder Professional Associations	Supporting stakeholders representing primary beneficiaries, with the ability to be actively involved and to influence the outcome. Includes organizations such as the Sheriffs' Association of Texas, Texas Association of Public Safety Communications Officials (APCO), Texas Fire Chiefs Association, Texas Police Chiefs Association, Texas Emergency Management Associations, Texas Emergency Medical Associations, etc.
Texas First-Responders	Primary benefiting stakeholders, directly affected by the outcome.

Goal 1: Governance – Achieve statewide interoperability by institutionalizing collaborative approaches across the state based upon common priorities and consensus at the regional level.

- **Target Objective:** Ensure a coordinated governance structure, with representation from all regions, all disciplines, state, Federal and non-governmental agencies to plan and implement statewide communications interoperability for all stakeholders.
- **Linked to NECP Objective 1:** Formal Governance Structures and Clear Leadership
- **Key Strategy:** Education and planning

Goal 2: Standard Operating Procedures – Enhance use of interoperable communications systems with integrated, NIMS-compliant, regional SOPs.

- **Target Objective:** Improve coordination of first responder activities with integrated SOPs that are included in training programs and exercised routinely.
- **Key Strategy:** Facilitate regional integrated SOPs

Goal 3: Technology – Build a statewide “system-of-systems” network consisting of regional standards-based shared voice and data communications systems. Voice systems will adhere to the Project 25 (P25) suite of standards. Data systems will adhere to a suite of standards still to be defined.

- **Target Objective:** Ensure operability while leveraging investments in existing communications infrastructure and systems when designing and implementing regional interoperability.
- **Key Strategy:** Planning and project management

Goal 4: Training and Exercises – Ensure integrated local and regional training and exercise opportunities are available to all emergency responders.

- **Target Objective:** Ensure that first responders at all levels are trained and routinely exercise communications equipment, procedures and coordination.
- **Key Strategy:** Multiple training and exercise opportunities

Goal 5: Usage – Accelerate use of regional data and P25 shared voice communications systems for daily operations as well as all-hazards emergency communications.

- **Target Objective:** Expand and/or transition voice communications systems to P25 regional shared (fixed and mobile) systems.
- **Key Strategies:** Planning and project management

Goal 6: Funding – Secure consistent funding for ongoing development, capital replacement, operations and maintenance costs.

- **Target Objective:** Develop a funding plan that will generate the funding resources necessary to acquire and sustain statewide voice and data communications interoperability.
- **Key Strategies:** Planning, support and legislative action

The SCIP goals and objectives are consistent with the Texas Homeland Security Strategic Plan as well as the Texas Emergency Management Plan, the Texas Department of Public Safety Agency Strategic Plan, and the UA Tactical Interoperable Communications Plans.

5.4 Strategic Initiatives

The *three overarching and prioritized strategic initiatives* of the Texas SCIP to achieve interoperability are:

1. Ensure operability
2. Provide interoperable solutions
3. Upgrade and expand regional shared systems

The following SCIP strategic initiatives have been reviewed, discussed and approved during annual Statewide Strategic Planning Conferences.

Governance Initiatives

The following table outlines the strategic governance initiatives, gaps and milestone dates to improve interoperable communications in Texas.

Table 7 – Governance Initiatives

Initiative	Gap	Milestone Date
Hire a full-time SCIP Interoperability Coordinator and support staff.	Dedicated leadership	Hired hire full-time SCIP Coordinator and staff Oct. 2009
Finalize the Texas SCIP Governance Charter based on the SAFECOM/DHS template. Tasks: research, evaluate, draft, confirm.	No formal governance agreement	SCIP Governance Charter adopted 2/11/08.
Conduct annual Focus Group Sessions and annual Statewide Strategic Planning Conference.	Forum to voice operational requirements and current concerns	Recurring initiative. Regions completed Focus Group Sessions . Annual Conference 8/24/10.
Promote State legislation that enforces timely and cost-efficient execution of strategic plan initiatives.	Lack of interoperability and funding	Developing Legislative report.
Assist regions with governance development for regional shared interoperable communications systems. Task: 1) Request ICTAP assistance.	Planning and collaboration	. Regional Governance adopted April 15, 2010.
Develop project accountability policies and procedures to ensure successful implementation and that “taxpayer’s get maximum value for their dollars.” Tasks: 1) Develop and require project management and cost analysis reports 2) Provide project management training 3) Update vendors on accountability measures	Lack of funding; robust accountability; project management	Recurring initiative. T-1, 2 and 3 completed Sept 2008. Ongoing training.

SOP Initiatives

The following table outlines the SOP strategic initiatives, gaps and milestone dates to improve interoperable communications in Texas.

Table 8 – SOP Initiatives

Initiative	Gap	Milestone Date
Each region will develop a Communications SOP for response to emergencies. Tasks: 1) Develop a template for the common regional integrated state and local agency communications	Clear coordination and responsibility procedures	T-1 Template completed T-2 Regional SOPs

Initiative	Gap	Milestone Date
SOP 2) Regions adopt common integrated SOP by 3/15/2010 3) Review and post SOPs by 6/2010		adopted by 03/15/2010 T-3 Post SOPs by 01/2010
Evaluate and coordinate Mutual Aid Interoperability Channels in the 800 MHz and VHF frequency bands. Fund infrastructure improvements for implementation of all recognized mutual aid channels (800 MHz, 700 MHz, VHF, and UHF).	Mutual Aid channels are overloaded in metro and urban areas.	2008 DPS to provide ongoing coordination Implement solutions as prioritized by regions
Promote a communications interoperability plan/agreement with Mexico.	Unable to communicate when providing/receiving mutual aid	April 2010 Submitted grants for Border interoperability demonstration projects.

Technology Initiatives

The following table outlines the short-term technology strategic initiatives, gaps and milestone dates to improve interoperable communications in Texas.

Table 9 – Technology Initiatives

Initiative	Gap	Milestone Date
GAP Analysis: Provide operability throughout the State by implementing solutions to close gaps found through user surveys and CASM data analysis. Tasks: 1) Identify gaps 2) Implement solutions	No operability in parts of Texas	Complete CASM data entry by 12/15/09 ID gaps by 2011 Implement solutions by 2013
Regional Migration Plans: Assist regions in the development of plans to migrate radio assets to a standards-based, shared system of systems. Tasks:	Regional interoperability, Aged equipment	Task 1 and 2 completed RICP Round 2 – 6/15/11

Initiative	Gap	Milestone Date
Mexico Border Communications: Develop a plan for operability and interoperable communications along the Texas-Mexico Border from El Paso to Brownsville	Coverage, operability, Aged equipment, Interoperability, Disaster communications	April 2010 submitted Border interoperability demonstration projects.
Frequency coordination: Develop a process to address frequency coordination, radio interference, and conflict mediation	Insufficient channel availability; Interference	DPS staffed position July 2009

Training and Exercises Initiatives

The following table outlines the training and exercises strategic initiatives, gaps, and milestone dates to improve interoperable communications in Texas.

Table 10 – Training and Exercises Initiatives

Initiative	Gap	Milestone Date
COML Training: Enhance training and exercise programs	Lack of local training and education on current interoperability capabilities and structure	Completed 17 classes since Aug. 2008; 325+ trained in Texas classes;
Communications Coordination Group (CCG): Develop and exercise CCG emergency disaster communications capabilities.	Reliable coordinated communications for emergency disaster response.	Four major exercised completed by Rapid Response Task Forces during 2010 Completed and on-going

Usage Initiatives

The following table outlines the usage strategic initiatives, gaps and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Table 11 – Usage Initiatives

Initiative	Gap	Milestone Date
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Initiative	Gap	Milestone Date
Communications Assets: Develop and keep current an interactive statewide communications assessment database	Capabilities assessment	Recurring initiative Complete initial entries 12/15/09
Usage drill: Implement programs to require routine use of interoperability equipment	Knowledge of equipment	COMX Texas training by Oct. 2010; duplicated for regional training by June 2011.
NECP Goal 1: 90 percent of UASI areas are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.	Interoperability; response-level emergency communications	Demonstrations to be completed by Sept. 2010
NECP Goal 2: 75 percent of non-UASI jurisdictions are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.	Interoperability; response-level emergency communications	Methodology and criteria approved Aug. 2010. Demonstrations to be completed by June 2011.
NECP Goal 3: 75 percent of all jurisdictions are able to demonstrate response-level emergency communications within three hours in the event of a significant incident.	Interoperability; response-level emergency communications	CCG completed 4 major exercises in 2010

Funding Initiatives

The following table outlines the strategic funding initiatives, gaps, and milestone dates to improve interoperable communications in Texas.

Table 12 – Funding Initiatives

Initiative	Gap	Milestone Date
Operation Texas Talks: Secure consistent funding for ongoing development, capital replacement, and maintenance costs	No dedicated funding mechanism for communications and interoperability efforts	Submitting preliminary report to Texas Legislature Aug. 2010; Detailed report to be submitted by June 2011.
Prioritize Funding for immediate and critical communications needs	Lack of funding	Send funding recommendations to regions annually

The TxRC will engage each element of the SAFECOM Interoperability Continuum, while prioritizing time, efforts and available funding to achieve realistic solutions. This will be accomplished by:

- Encouraging regional planning and informed technology acquisitions for all communications grant packages.
- *Identifying solutions which involve a “system-of-systems” approach that incorporates existing technologies and allows for the development of new technologies and functionality in the future.*¹⁷
- Requiring open architecture, non-proprietary, spectrum efficient, standards-based regional systems.
- Requiring new voice and data systems to meet the SAFECOM Statement of Requirements.
- Ensuring that equipment to be purchased is compliant with one or more of the criteria items listed here:
 - Can be incorporated into the longer-term statewide goal of standards-based shared system architecture.
 - Provides essential intra-agency operability it needs in compliance with NIMS and/or OSHA.
 - Equipment will serve specific interoperability needs such as designated interoperability/ mutual aid infrastructure (NPSPAC or shared Texas Interoperability channels.)
 - Equipment will serve specific interoperability needs such as patches, gateways or switches, multi-casting and/or receiver voting.
 - Equipment will serve Strategic Technology Reserve requirements.
 - Equipment is necessary for communication tower replacement and/or maintenance.
 - Equipment is IP based interoperable data equipment/system.
- Identifying shared and like systems that are standards-based and promote and encourage the collaboration and integration of these systems to begin the forming of the Statewide Standards-based system.
- Providing specifications for voice and data systems reliability, redundancy and replacement.
- Prioritizing system connections both by region and statewide implementing the connections that respond to the greatest threat first.
- Producing a technical migration plan that can be used by local, regional and state entities to assure that a standards-based shared system can be reached within a reasonable timeframe.
- Assisting with the development of regional SOPs for communications interoperability.
- Assisting with the development of joint training packages and regular regional exercises.

¹⁷ “How does SAFECOM address the needs of emergency response agencies?”
<http://www.safecomprogram.gov/SAFECOM/about/faq/>

5.4.1 Regional and Statewide Communications Interoperability Projects

An overview of regional, urban area and state agencies “needs for interoperability” projects are provided here. These projects are not prioritized or listed in any specific order. As available interoperability funding is identified, regions/agencies will be required to submit applications. Projects that will be prioritized for funding are those that best address the criteria of the funding program as well as the three Strategic Initiatives shown in Section 5.4 and the Short- and Long-term Initiatives listed in Section 6.3.

Region-Wide

Many regions across the state have identified the same communications operability concerns; in some areas, these concerns are at a critical level. Although these concerns are statewide, they will be addressed within each region, as they are prioritized within the region. The operability concerns are:

- Aged and decaying towers with unreliable antenna systems
- A lack of mutual aid transmitters within their region
- Subscriber radios for incident management

Border Communications

An “overwhelming presence of law enforcement officers will deter those who smuggle drugs and people, including potential terrorists...It’s the organized smuggling activities related to human trafficking that presents the national security threat” -- Steve McCraw, Texas Homeland Security Director.¹⁸

¹⁸ San Antonio Express News, August 12, 2007.

Figure 12, “Texas Border Counties,” shows the specific counties along the international border that are included in the Border Communications Interoperability Plan and the Texas Border Security Operations Center in Austin. The counties in yellow share the border with Mexico, the counties in green are one county inland from the border.

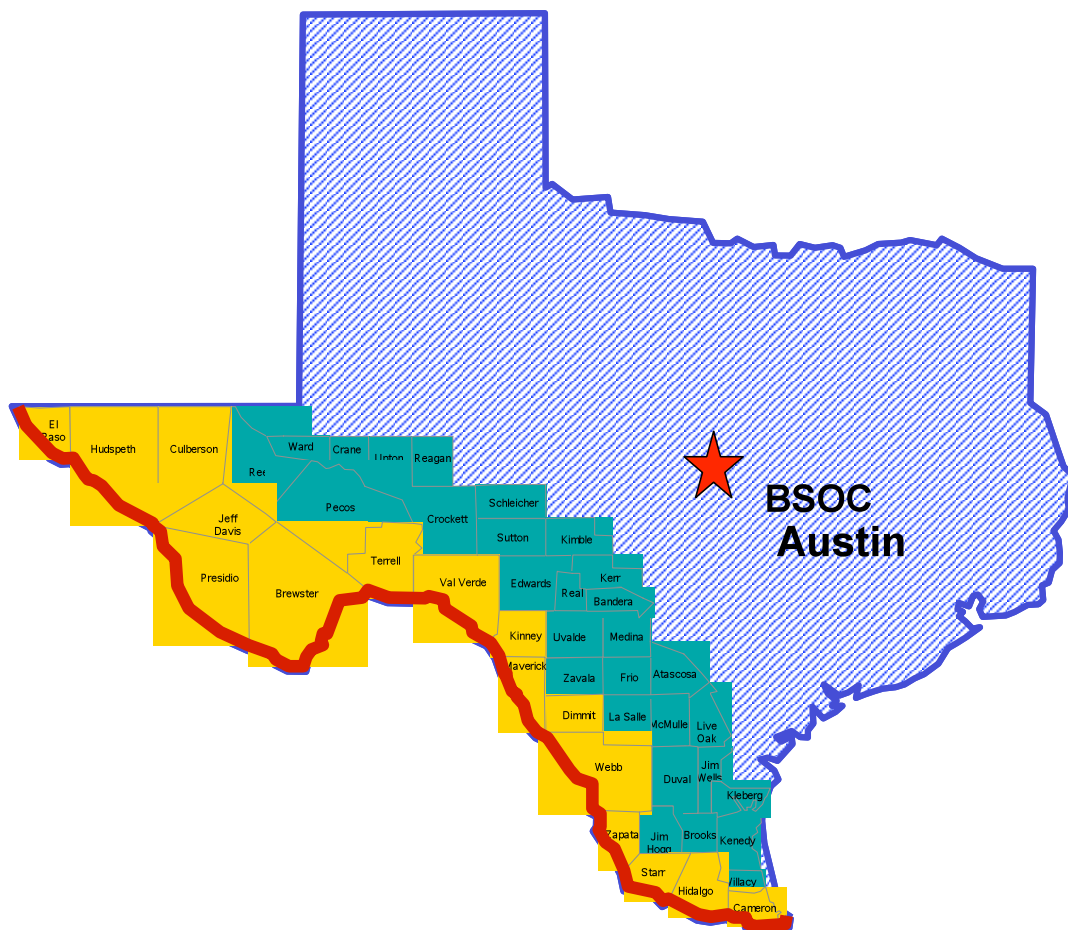


Figure 11 - Texas Border Counties

The immediate and critical need is for reliable communications operability from El Paso to Brownsville. The Middle Rio Grande Development Council (MRGDC) has constructed a regional VHF trunked P25 communications in three border counties and six adjacent counties. By partnering with the MRGDC, this regional communications system will be expanded to provide communications along the entire international border. Existing state, local, tribal and Federal agency and non-governmental organization communications facilities and infrastructure will be utilized where possible. This system will be the primary communications for most local and some state public safety agencies along the border, and will provide interoperability for all public safety agencies responsible for securing the border.

Houston UA

The City of Houston is building a new 700 MHz interoperable public safety radio system. This system will be integrated with the existing Harris County/H-GAC Regional Radio System. The two systems will provide capacity, coverage and signal strength needed for the Houston area. The Harris County/H-GAC Regional Radio System surrounds Houston and provides interoperability to more than 500 agencies and 33,000 users. Harris County is currently upgrading the regional system to standards-based P25, and also needs to implement additional sites to increase capacity and coverage. With the implementation of the City of Houston system, Houston and Harris County will partner in providing standards-based interoperable communications throughout the multi-county region.

Dallas/Fort Worth/Arlington UA

The City of Dallas plans to upgrade an analog, trunked 800 MHz communications system to include 700 MHz, which will provide interoperability to the Dallas public safety agencies as well as public works agencies. This system will serve a population of 1.25 million people and provide communications for approximately 3,500 first responders and 4,000 support and public works personnel.

The goal for the UASI area is to have seamless interoperability among metroplex systems, such as the Dallas and Fort Worth systems. A multi-phased approach is being considered, due to the high cost of implementing new systems in the UASI area. The project currently being evaluated is the installation of a 700 MHz P25 system overlay of the Region (3-6 channels) for agencies to roam outside their jurisdictional boundaries. This system would utilize existing computer hardware to allow multiple systems to connect for interoperability and economic purposes. Using new technologies that will allow interfacing older technologies to the newer standards based infrastructure will ease the migration to a “system of standards-based systems.” Until this is achieved, the use of gateways and console patches will continue, unless there are shared channels on common systems.

Dallas recently installed a network of wireless video surveillance cameras. It is expected that the coverage will be expanded to more areas in the Dallas/Arlington/Fort Worth UASI when funding is identified.

El Paso UA

El Paso is in the process of upgrading to a standards-based interoperable communications system. The El Paso strategic plan for interoperable communications is comprised of six stages. Stage I addresses the upgrade of communications infrastructure to standards-based P25 technology. This will provide interoperability and coverage for the UASI area (City of El Paso and County of El Paso). This portion of the plan includes interoperable communications in both 800 MHz and VHF frequencies

San Antonio UA

San Antonio plans to enhance their existing 800 MHz coverage area by consolidating several non-simulcast sites into new simulcast sites. This will improve coverage, especially in the rapidly growing southern areas of the county due to Toyota. This consolidation will also add capacity and flexibility and enable the area re-utilize frequencies at other existing sites and build-out several new sites in adjoining counties based on population growth. They also intend to migrate their infrastructure to more recent technology that will allow them to make the transition to P25 quicker and easier over the next several years. In addition, they plan to improve system interoperability by creating 700 MHz interoperability overlays and establish switch-to-switch connections with several public safety and critical infrastructure agencies (LCRA, VIA Transit, Corpus Christi / Nueces County, American Electric Power [AEP]) locally and regionally. These overlays and connections will leverage existing 800 MHz and 900 MHz coverage areas, existing infrastructure and resources throughout multiple regions but especially along major evacuation routes, logistical support corridors and between regional medical centers.

In addition, placing Texas shared interoperability channel infrastructure in the rural areas adjacent to San Antonio will provide both operability and interoperability for local, regional, state and Federal agencies.

Lower Colorado River Authority (LCRA)

- Implementation of 700 MHz overlay to existing LCRA system. Install two redundant master switches with conventional gateway, ISSI interface, IP gateway and console. This equipment will allow for a seamless integration into existing regional systems, as well as the agencies' existing conventional systems for interoperability.
- 700 MHz channel equipment installation at 46 existing sites that will consist of three RF channels and accessories to provide approximately 37,000 square miles of RF coverage that consist of all or part of 54 counties in central Texas.

Brazos River Authority (BRA)

- Replace current infrastructure to meet gateway/patch interoperable VHF communications requirements for Authority lake rangers (licensed peace officers).
 - Replace all old repeaters, base stations and consoles with P25 compliant equipment.
 - Add a base station, tower, antenna and associated cabling equipment to the Central Office facility.
 - Add ACU-1000 gateways for connection between BRA VHF and various mutual-aid frequencies.
- Purchase and install mobile data terminal communication systems at Possum Kingdom Lake, Lake Granbury and Lake Limestone for specialized law enforcement data and voice capabilities.

- Purchase and installation includes laptop computers, radios, power supplies, towers, antennas, mounting brackets for law enforcement vehicles, and associated cabling.

Texas Department of Transportation (TxDOT)

- Complete conversion from Low-Band to VHF High-Band, subscriber radios statewide, and two districts that still need High-Band infrastructure and subscriber radios. This includes towers, switch, infrastructure and subscriber units for TxDOT.
- Radio system for the Dallas District: 700 MHz, P25, trunked radio system with capacity that all state agencies can use, and expansion capability that would allow participation by other agencies for growth into a Dallas regional system if desired. Phase two would involve reoccurring cost of connectivity for linking of sites to switch.

Texas Forest Service

The Forest Service must have interoperable communications on both VHF and 700/800 MHz frequencies to coordinate wild-land firefighting efforts

Texas Alcoholic Beverage Commission (TABC)

- Replacement of 120 VHF High-Band Portable two-way radios to meet FCC narrow band requirements, that also would be P25 digital capable for interoperability with state, county and local law enforcement agencies statewide.
- Replacement of 250 VHF High-Band mobile two-way radios to meet FCC narrow band requirements, that also would be P25 Digital Capable for interoperability with state, county and local law enforcement agencies statewide.

Texas Department of Public Safety (DPS)

To address the Department's immediate and critical communications interoperability issues, DPS needs three interface switches to create an infrastructure to network existing resources and provide sufficient capacity to allow local and regional radio systems to interface. These switches will also provide redundancy in the event one or more become disabled. The first switch would create a network along the Texas-Mexico border and the Gulf Coast region. The remaining switches will expand the network to all areas of the state. To connect with other state, local and regional agencies a gateway device is needed.

Additionally, procurement and installation of a master site switch will provide optimal interoperability and begin the infrastructure for an all state agency trunked hybrid system utilizing 700 MHz where feasible.

Texas Military Forces (TXMF)

TXMF will continue to serve as the lead agency for all military support from both state and federal military forces required within the Texas area of operations in accordance with Annex W (Military Support) to the *State of Texas Emergency Management Plan*. TXMF will host Joint/Inter-Agency Command Posts involved with the impacted area. To assure success, the TXMF requires additional redundancy, reliability and modernization of its interoperable communications to support National Guard Task Force(s) and other critical interagency command posts and emergency response forces outlined in Annex N (Direction and Control) to the *State Plan* and in the Governor's initiatives on prevention of terrorists from exploiting the Texas-Mexico border.

Strategy:

- Modernize Network Infrastructure that hosts deployable satellite packages. The data network that supports the deployable satellite packages is in dire need of infrastructure modernization to continue supporting state needs during disasters. Since TXMF interoperable communications equipment was largely obtained from Federal funds for base support for the data network, required modernization of the network has been delayed. No state funds are budgeted to support this capability. This modernization includes upgrading telecomm equipment and finalizing a Continuity of Operations Plan (COOP) to employ a fully redundant data network.
- Add Deployable Satellite Packages. Current Interoperable communications and satellite packages support the deployed National Guard Task Force(s) and other critical inter-agency command posts outlined in Annex N (Direction and Control) to the State Emergency Management Plan. Additional systems allow support of the entire National Guard Task Force and joint/interagency command posts to facilitate interoperability with other response agencies in voice and data communications while providing reach-back communications to National Guard and DoD infrastructure. TXMF will further develop stationing, staffing plans and MOUs for interoperable communication packages.
- Add Interoperable P25 Radios at tactical level. Assure complete adherence to TSCIP for all VHF, UHF, 700 and 800 radios and allow National Guard emergency response forces to interoperate with all agencies in the incident area.
- Refine SOPs. Provide input for state communication SOPs, telephone and e-mail directories, and common operating reporting templates; and share points and assist interagency partners with this function.
- Build redundancy and expand deployable HF Stations with E-mail. Integrate the Texas State Guard into interoperable communications training to develop a pool of trained augmentees. Expanding Texas State Guard role in MARS/RACES E-mail via HF PMBO. Install two HF PMBO E-mail gateways on assigned military HF frequencies. Expanding TXMF HF E-mail stations at selected fixed sites.
- Train and Exercise all personnel and equipment. Conduct ongoing sustainment training to install, operate, and maintain all interoperable packages. Train and equip TXMF Agency Reps for Disaster District Committees. Participate in all

- inter-agency local and state communication exercises.
- Refine and robust the WebEOC network. Further refine the capability for coordination between TDEM/SOC, TXMF Joint Operations Center and the National Guard Task Force. Build two levels of WebEOC server, data and telecomm redundancy so it never fails.

As the governor's major force provider, the TXMF plays a crucial role in large numbers of personnel and equipment while enabling and enhancing the State's Incident Command and Multi-Agency Coordination Systems through interoperable communication capabilities. TXMF has the personnel, facilities and training to install, operate and maintain multiple types of proven communications packages on short notice wherever it is needed. Reliable interoperable communications assures successful and professional execution of state plans.

5.4.1.1 Interoperable Communications with the States of Arkansas, Louisiana, Oklahoma and New Mexico

(Criteria 2.2)

Texas has close working relationships with all bordering states and shares a variety of different programs. Because of this environment, the individual agencies on each side of the borders have developed and shared city and county communications systems for years.

In the emergence of a national disaster event, communications with adjacent states will be conducted under the Emergency Management Assistance Compact (EMAC). EMAC was signed into law and adopted by individual states in 1996. EMAC is a national Governor's interstate mutual aid compact that facilitates the sharing of resources, personnel and equipment across state lines during times of disaster and emergency.

EMAC provides:

- Administrative oversight, support staff and formal business protocols
- A solution to potential problems by establishing provisions in the Compact for:
 - Reimbursement, licensure and liability
- Continuity of operations with SOPs and integrates into existing command and control structures
- Continual improvements with a five-year strategic plan, critiques, training, exercises and meetings
- An EMAC Operations Systems that manages events

EMAC's step-by-step activation process is:

1. Governor issues state of emergency
2. EMAC is activated
3. State assesses needs for resources

4. A-Team (in-house or from other state) helps to find resources and determine costs and availability
5. States complete negotiation of costs
6. States complete EMAC REQ-A Form
7. Resources are sent to Requesting State from Assisting States (mobilized)
8. Resources are sent back to home state (demobilized)
9. Assisting State sends Requesting State Reimbursement Package (after internal audit)
10. Requesting State Reimburses Assisting State¹⁹

EMAC is the mutual aid agreement. The actual communications will be coordinated through the Governor's Office of Emergency Management and achieved with state and regional communications vans and trailers, and a radio cache and satellite phones to be distributed at the scene from the STR.

The El Paso Regional Strategic Plan will also strengthen existing connectivity to the state of New Mexico. El Paso is linked to the City of Las Cruces, New Mexico's analog 800 MHz radio system via a base station located at the City's 3 Hills Tower Site back to the District 911 Dispatch Center which utilizes the City of El Paso's analog Public Safety 800 MHz Radio System. The Far West Texas and Southern New Mexico Regional Advisory Council on Trauma connects three of the six Region 08 Texas counties to the entire State of New Mexico's UHF radio network back to the District 911 Dispatch Center/City of El Paso Radio System.

The plan identifies current coordinated efforts with New Mexico's Office of Emergency Management, OEM and New Mexico State University, to mesh the New Mexico statewide P25 VHF system to the City of El Paso's proposed P25 800/VHF Radio Master Site. This Regional Master Site will incorporate P25 800 MHz, VHF, UHF and 700 MHz capabilities. The initial design will provide P25 800 MHz and VHF functionality. The plan will promote a user friendly and cost effective "Talk Group" functionality for the region and the neighboring state of New Mexico.

5.4.1.2 Interoperable Communications with Mexico

(Criteria 2.2)

The U.S. State Department is currently finalizing a communications interoperability plan/agreement with Mexico, which will include the U.S./Mexico border from Brownsville, Texas, to San Diego, California. The plan includes microwave links to the Border Patrol Sector Headquarters. Any agencies operating along the Border will have access to communications via the microwave link.

¹⁹ EMAC Overview, DMIS SIG August 2006,
<http://www.disasterhelp.gov/disastermanagement/library/archive/060802EMAC.ppt#256,1,Slide 1>

Several local border jurisdictions, such as Brownsville, Del Rio, Eagle Pass and El Paso, have informal agreements between fire departments to provide mutual aid on fire and hazardous materials incidents. These agreements typically are to provide operational assistance when and if called to assist by the other party.

5.4.1.3 Communications Interoperability with Transit Systems, Intercity Bus Service Providers, Passenger Rail Operations and Ports (Criteria 2.6)

In most cases, the urban areas with major transit and bus service companies have provided these organizations with interoperable equipment or have established interfaces with the organization's communications systems. When discussing the interoperability concerns with the transit and bus service companies, training and exercises topped the list. The revised training and exercise program instructions will include transit and bus organizations in all regional programs.

The Port of Houston

The Port of Houston is comprised of the Port of Houston Authority and more than 150 private industrial companies along the Houston Ship Channel. The Port of Houston Authority is on the Harris County Regional Radio System. The Port Dispatch Center is tied directly into the regional system. The Port dispatch has three operator positions, giving dispatchers direct interoperability with more than 512 different Federal, state and local agencies. Harris County Information Technology won a Best of Texas Award for this collaboration.

The Port has a new P25 site, which will be integrated into the Regional Radio System when the conversion to digital technology is complete for all regional users and infrastructure. The Port presently has more than 250 radios on the regional system with a plan for hundreds more. The U.S. Coast Guard and U.S. Navy also have radios in the port area and are able to communicate directly through the regional system with the Port Authority, or on Marine channels through consoles at the dispatch center.

The Port, along with the City of Houston and Harris County, participated in the Department of Justice's High Risk Metropolitan Area Interoperability Assistance Project, which identified and implemented "quick fix" interoperability solutions in 25 U.S. cities in 2005 and 2006. The Port Dispatch Center consoles now are capable of direct communications with the FBI and other Federal agencies via a two-channel VHF repeater system. This interoperability solution covers the Houston Metropolitan and Port areas. The FBI, the Harris County Sheriff's Department, the City of Houston Police Department and the Port of Houston Authority Police Department test functionality weekly to promote familiarity with the capability. The Port Authority also plans to build out a data network to share streaming video with the EOC and local law enforcement.

5.4.2 Data Interoperability

(Criteria 2.3)

Mobile data is used to provide, enhance or supplement communications between different agencies, or provide access to shared information. Mobile data interoperability may be linked with 1) Common Mobile Client Applications; or 2) Database Sharing.

Methods of Enabling Mobile Data Interoperability: Mobile data interoperability does not require using the same wireless data infrastructure. Nevertheless, the use of the same infrastructure can make interoperability implementation easier since the applications only need to be concerned about communication using one wireless network protocol. In recent years, IP has become an industry standard for network layer communications over wireless data infrastructures. Practically all leased wireless data services use or offer IP for data communications.

Current Data Capabilities

Local and Regional Data Capabilities: Many private radio systems and most regional radio systems currently have some data capability. This ranges from integrated voice and data on a voice radio system to mobile data operating on 800 and 900 MHz frequencies and mesh broadband systems. Applications include text messaging, mapping and database searches, and access to Texas Law Enforcement Telecommunications System (TLETS) and National Crime Information Center (NCIC).

Department of Public Safety: The State Legislature recently authorized funding for laptops/data terminals in all DPS Highway Patrol units. This network will provide officers with text messaging capability for coordination of operations across multiple counties. It will also provide direct mobile access to TLETS. TLETS provides access to a variety of local, state and Federal criminal data base systems, e.g., NCIC.

SAFECOM Recommendations

Public Safety responders [should] have the capability to transmit and receive all information (voice/data/video) necessary to maximize their effectiveness²⁰. Figure 13, “System of Systems Architecture Solution,” illustrates the “architecture for mobile data as recommended by SAFECOM.”

²⁰ Improving Public Safety Wireless communications and Interoperability, March 17, 2004, David Boyd, Dereck Orr.
<http://www.interoperability.virginia.gov/pdfs/SAFECOM-ImprovingWirelessComms.pdf>


SAFECOM

SAFECOM advocates the creation of a System of Systems architecture solution for interoperability.

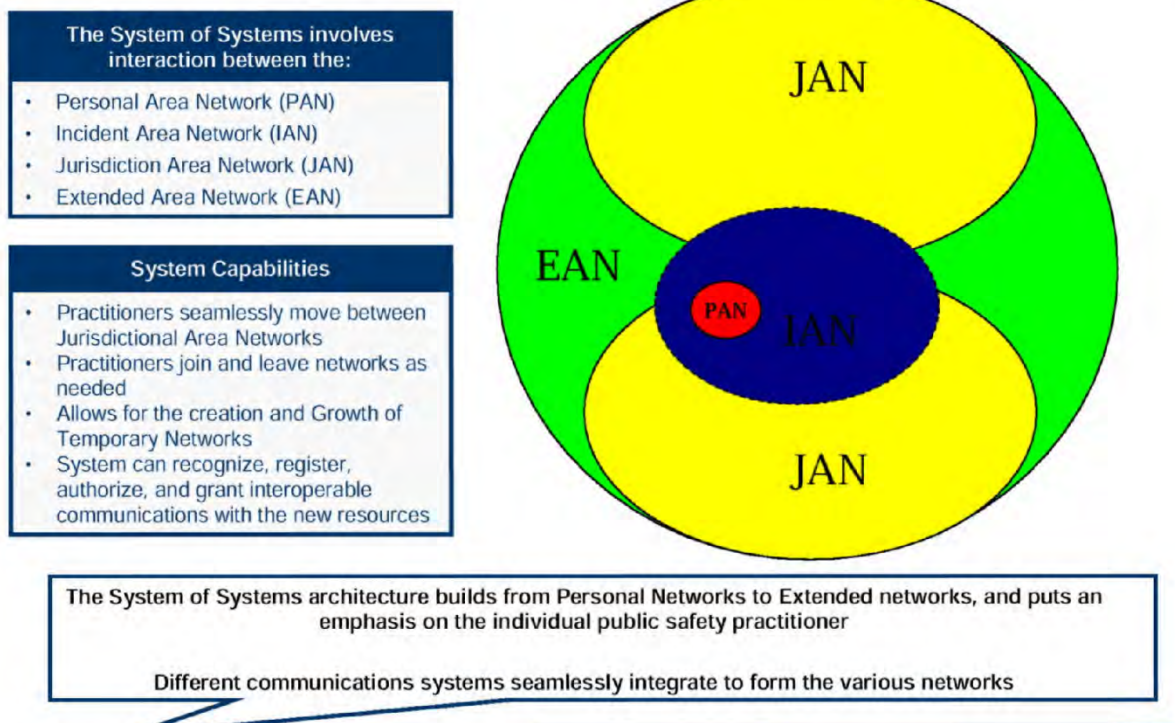


Figure 12 - System of Systems Architecture Solution

XML (eXtensible Markup Language) — a universal language to transport data from system to system: XML is the universal language for data description. What this means is that data from any database or application can be described in one universal format. XML allows the structure and meaning of data to be defined through simple but carefully defined syntax rules, thereby providing a common framework for cross-platform or cross-system data exchange. XML can act as a universal translator among all disparate information systems. XML finally makes it possible to share data easily by providing a translation layer at each agency system ... Most major software vendors fully support the general XML standard, and major database vendors and their database applications provide software development tools to assist homeland security technical staff to develop and use XML more efficiently and productively within agency applications. The general XML standard is designed to be independent of vendor, operating system, source application, destination application, storage medium (database) and/or transport protocol.²¹

²¹ "Building Exchange Content Using the Global Justice XML Data Model: A User Guide for Practitioners and Developers"; U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Assistance; June 2005.

NIEM, the National Information Exchange Model, is a partnership of the U.S. Departments of Justice and Homeland Security. It is designed to develop, disseminate and support enterprise-wide information exchange standards and processes that can enable jurisdictions to effectively share critical information in emergency situations, as well as support the day-to-day operations of agencies throughout the nation.

NIEM enables information sharing, focusing on information exchanged among organizations as part of their current or intended business practices. The NIEM exchange development methodology results in a common semantic understanding among participating organizations and data formatted in a semantically consistent manner. NIEM will standardize content (actual data exchange standards), provide tools, and managed processes.

NIEM builds on the demonstrated success of the Global Justice XML Data Model (GJXDM). Stakeholders from relevant communities work together to define critical exchanges, leveraging the successful work of the GJXDM.²²

(Criteria 2.3) – Strategic Plan for Data Interoperability

Texas is awaiting the establishment of the Public Safety Spectrum Trust (PSST) to finalize our development of a statewide strategy for data interoperability. The PSST is being created as part of a public-private partnership by the FCC to build out a nationwide interoperable public safety broadband data system.

Texas is also investigating both the “system-of-systems” solution for interoperability and the NIEM/Global XML Information Exchange Model. Our objective is to provide a plan where regional areas with financial investments in proprietary data networks can output information to a global data warehouse where the information can be transported into a statewide central model. When a data interoperability standard is officially established, the TxRC Technology Working Group will provide a migration strategy to that standard. The current recommendation of the Technology Working Group is that all new data systems should be IP-based.

Data Exchange and Information Sharing

Texas Data Exchange (TDEx): Texas is currently implementing a system for sharing critical intelligence and information between local, state and Federal law enforcement agencies, which benefits first responders through the state. TDEx is a comprehensive information sharing portal that allows criminal justice agencies to quickly access law enforcement records management systems throughout much of the state and retrieve records in response to queries. Figure 14, “TDEx Status for Texas Counties” identifies agencies and counties throughout the state that are currently signed on and using TDEx.

²² NIEM (National Information Exchange Model) Bridging Information systems; <http://www.niem.gov/>

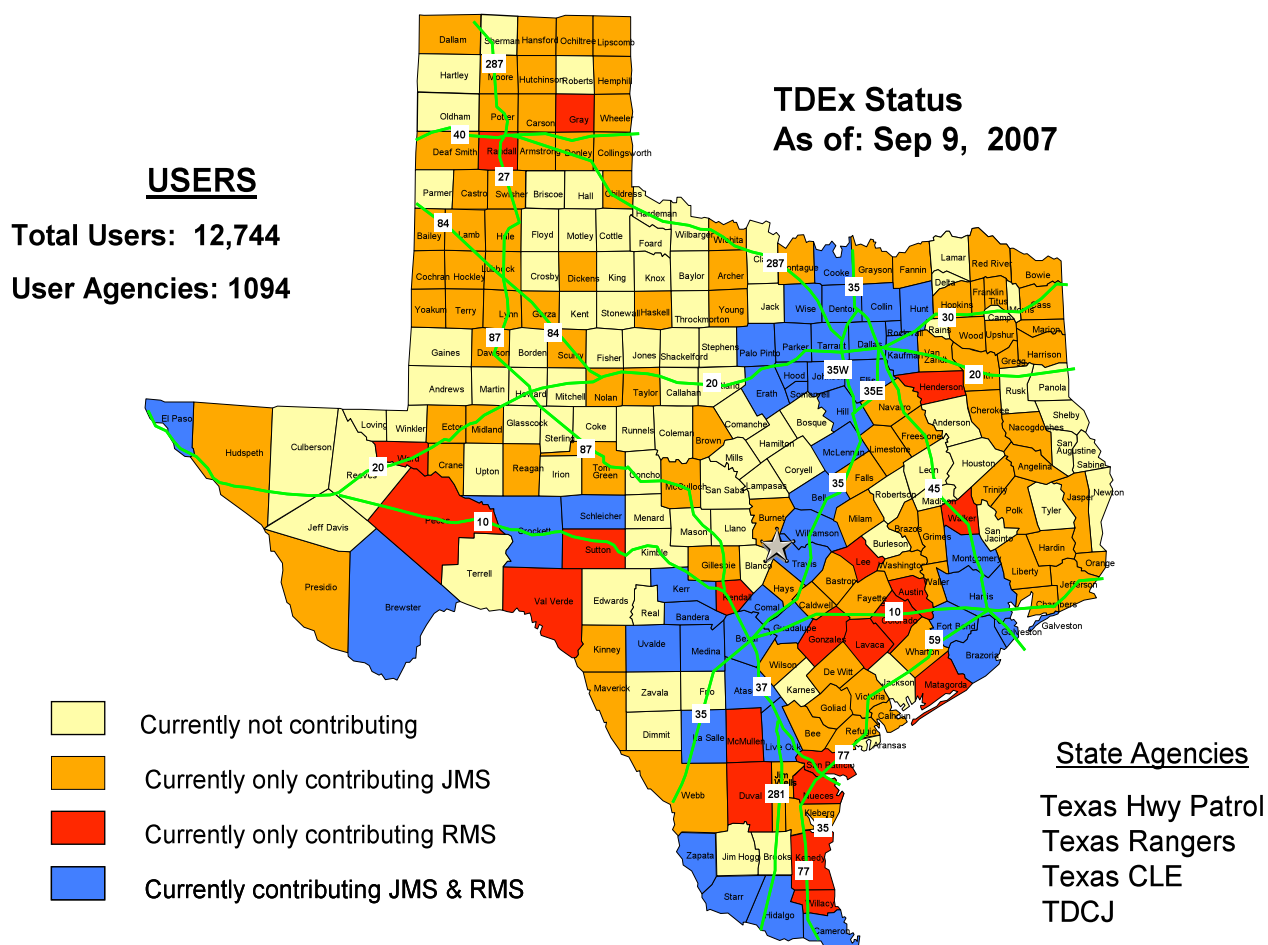


Figure 13 - TDEx Status for Texas Counties

Table 8 shows the types and quantity of records that exist in the system and have been accessed through September 2007. Texas is in the process of implementing N-DEx, the National Sharing of Criminal Justice Data. TDEx will provide future connectivity to N-DEx.

Table 13 - TDEx Access Data Record

Record Type	September 2007 Record Count
Incident	22,110,516
Bookings	26,232,349
Citations	6,360,728
Photos	3,565,632
Searchable Words	428,914,790
Searchable Narratives	6.7M
System Queries	336,118
User Accounts Issued	12,744

The N-DEx Vision is to share complete, accurate, timely and useful criminal justice information across jurisdictional boundaries and to provide new investigative tools that enhance the nation's ability to fight crime and terrorism. Texas has been working with the FBI to implement N-DEx since March 2007 and will be fully NIEM 2.0 compliant on the interface in accordance with the N-DEx specifications.

Once N-DEx is up and running agencies will be able to access N-DEx data via a Web portal in the same fashion they access TDEx today. N-DEx will:

- Provide National Information Sharing of Criminal Justice Data
- Link Regional and State Systems
- Enable Virtual Regional Information Sharing Capability

5.4.3 Redundancies in Communications

(Criteria 2.4)

Texas has established three ways- of communicating in the event of a catastrophic loss of communications, should this occur: 1) the Radio Amateur Civil Emergency Service; 2) the Texas Regional Response Network; and 3) a Strategic Technology Reserve. In addition to state efforts to provide redundancy, the urban areas and most regional communications systems have stocks of replacement parts, back-up generators, alternate working sites and sites and/or communications on wheels.

Radio Amateur Civil Emergency Service (RACES)

On April 5, 2007, TDEM officially endorsed the RACES as a back-up to established state communications systems in emergency or disaster situations. Texas has more than 600 RACES Certified Radio Operators. The authority for this action is:

- Federal Communications Commission Rules and Regulations, Part 97
- Texas Disaster Act of 1975, V.T.C.A. Government Code Title 4, Chapter 418
- Executive Order of the Governor
- State of Texas Emergency Management Plan
- State of Texas Radio Amateur Civil Emergency Services Plan

The Federal Communications Commission (FCC) has authorized emergency management organizations to officially organize and employ radio amateurs to supplement non-governmental organizations, state, local, tribal and Federal government communications systems in emergencies or disaster operations.

TDEM has appointed a State RACES Radio Officer responsible for organizing and directing the State RACES program and for providing guidance to local governments to establish and operate local RACES programs.²³ Local RACES personnel are trained

²³ State of Texas, Radio Amateur Civil Emergency Service (RACES) Plan, April 15, 2007.

and exercised along with state, regional and local public safety responders. Additional training for RACES officers includes detailed communications techniques and protocols.

Texas Regional Response Network (TRRN)

TDEM and the Texas Forest Service have developed a comprehensive database of equipment, resources and locations to aid in emergency response and planning. The system allows local governments, emergency response organizations, and other authorized users to access and use a secure internet-based mutual aid resource database and user system to:

- Enter data on fire, law enforcement, search and rescue, public works and other state, tribal and local emergency resources. This data can be entered for local use only or identified as mutual aid resources available to other jurisdictions.
- Search for resources by category, type, county, Council of Government, Disaster District, or from a user-selected location.
- Display search results on an interactive map.
- Provide points of contact information for mutual aid resources requests.

The TRRN system can be accessed at two Web sites. The operational system is located at <http://www.trrn.state.tx.us> and is hosted at a secured AT&T server complex.

The TRRN was adopted as the Statewide Mutual Aid Database in November 2004. All jurisdictions seeking emergency management or homeland security grants must be registered participants in TRRN. Jurisdictions must enter data on all equipment within their community that is available for mutual aid assistance to other jurisdictions during response. Additional information on Texas NIMS and TRRN requirements can be found at http://www.txregionalcouncil.org/ep/NIMS_letter_062705.pdf.

Strategic Technology Reserve (STR)

Texas has an existing STR of communications vans, trailers and radio caches positioned regionally throughout Texas. In addition, each DPS Regional Liaison Officer has satellite phones and cellular phones with Wireless Priority Service (WPS), which will provide public safety priority service during an emergency.

As the designated state agency first responder, DPS will be responsible for the purchase, maintenance and use of the STR equipment. Mobile packages include an array of basic radio transceivers enabling coverage in a multitude of bands in both analog and P25 digital modes. Radios will be linked, when appropriate, with an IP-based mixing technology providing the most effective, currently available method of combining signals. This approach will also provide a means to disseminate the radio traffic to distant listeners over IP. Once operational, packages will be regularly deployed to provide opportunities for the user community to become proficient in the techniques required for effective use of mixed channels. Decision makers will also

become aware of how effective interoperable communications modifies information flow during events. The packages will also enable a greater amount of information to flow to and from Incident Command sites as digital data greatly reduces voice interaction. The addition of an IP-based interoperable communications system to the DPS statewide network, and the caching of radios and repeaters, will enable that network to support local communities in periods of overload or local infrastructure failure. The current list of STR equipment includes:

- Command/Communications Trailers
- Primary Towing Vehicles
- Portable Radios P25 with Trunking
- Cellular on Wheels
- Trunking Site on Wheels
- Laptop Computers for each Command Trailer
- Suitcase Digital Repeater with Trunking
- IP Gateway Devices
- FRS Radios
- Portable Generators
- Cargo Trailers
- Portable Gateway Devices
- Video Downlink for Helicopters
- Satellite Telephones and Radios
- HF Radio Equipment

Those who will most benefit from the STR are communities that have been ravaged by tornadoes or hurricanes, and families driven to rooftops to escape rampaging floodwaters and the first responders who brave the fire and water to rescue them.

5.5 National Incident Management System (NIMS) Compliance

(Criteria 2.5 and 6.4)

On February 23, 2005, Governor Perry issued Executive Order RP 40 adopting NIMS as the statewide system to be used for emergency prevention, preparedness, response, recovery and mitigation activities, as well as in support of all actions taken to assist local entities.

The State of Texas, through TDEM, tracks NIMS compliance and maintains a list of jurisdictions that are in compliance and therefore eligible to receive Federal funding.

The National Preparedness Guidelines require that, *“A continuous flow of critical information is maintained as needed among multi-jurisdictional and multi-disciplinary emergency responders, command posts, agencies, and governmental officials for the duration of the emergency response operation in compliance with the NIMS.”*²⁴ As

²⁴ National Preparedness Guidelines, September 2007, page 6.

emergency incidents unfold and escalate, requiring the involvement of more and more agencies and disciplines, effective communications planning becomes the most important tool for incident command and control.

Going forward, the controlling local, regional or state emergency response agency will be required to produce a completed NIMS ICS-205 Incident Radio Communications Plan form for all pre-planned events involving multiple jurisdictions or multiple emergency response agencies. The completed form likewise will be required for unplanned multi-jurisdictional, multi-discipline incidents of significant duration.

Successful use of the ICS-205 requires careful pre-planning for local incident management communications and identification of radio channels and/or talk groups to be used for the duration of the incident or event. When completed, the form should be distributed as soon as possible to all responding agencies.

The blank ICS-205 form may be found online at <http://training.fema.gov/EMIWeb/IS/ICSResource/Forms.htm>.

INCIDENT RADIO COMMUNICATIONS PLAN		1. Incident Name		2. Date/Time Prepared		3. Operational Period Date/Time	
4. Basic Radio Channel Utilization							
Mode: W=Wideband Analog, N=Narrowband Analog, D=Digital, M=Mixed							
Channel	Function	Frequency	Tone	Mode	Assignment	Remarks	
1		RXC					
		TXC					
2		RXC					
		TXC					
3		RXC					
		TXC					
4		RXC					
		TXC					
5		RXC					
		TXC					
6		RXC					
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7		RXC					
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14		RXC					
		TXC					
15		RXC					
		TXC					
16		RXC					
		TXC					
5. Prepared by (Communications Unit)							

Figure 14 - ICS 205 Incident Radio Communications Plan**5.6 SCIP Review and Update Process***(Criteria 2.7)*

The first Strategic Planning Session was well attended by both elected officials and public safety. Representatives from numerous levels of state, local and Federal government gathered to improve interoperable communications for Texas public safety responders. Represented organizations included the U.S. Senate and U.S. Congress; state and regional homeland security offices; county judges and city councils; sheriffs, police, fire departments and EMS organizations; transportation systems; and utilities and various state agencies.

The established 27 focus groups will meet annually to discuss accomplishments and re-evaluate and make recommendations to the statewide plan, specifically regarding the goals and strategic initiatives. These groups will also scrutinize operational requirements and current concerns. The operational requirements and concerns will be developed into regional initiatives and then prioritized. Focus group delegates will attend each Annual Strategic Planning Session where the recommendations and regional initiatives will be discussed, approved and prioritized. The TxRC will update the Statewide Plan and send to the Executive Committee for approval.

Throughout the year, at various public safety conferences, the TxRC will provide multiple opportunities to review and discuss the Texas SCIP. The TxRC will analyze all recommendations before they are recommended to Executive Committee.

At any time, any one of the focus groups may submit a request for a re-evaluation of the Texas SCIP or take exception to a specific requirement. If more than half of the focus groups agree on this action, then focus group sessions will be scheduled within 90 days and will follow the annual review and update procedure.

6 Implementation**6.1 Point of Contact for Plan Implementation***(Criteria 10.6)*

The implementation Point of Contact (POC) is the Texas Statewide Interoperability Communications Coordinator (SWIC), Mike Simpson, Texas DPS Assistant Director – Law Enforcement Support Division.

6.2 Plans for Educating Policy Makers and Practitioners*(Criteria 3.2 and 10.3)*

The development of an Outreach Program to enlist the support of practitioners and policy makers and provide current information on interoperability efforts is important for continued growth. The Outreach Program will:

- Educate influential Texas Legislators on the critical and ongoing need for communications interoperability and statewide efforts to address the issue. This will be addressed by:
 - Developing an outreach and education strategy.
 - Preparing and providing a wide range of educational materials for stakeholders and decision makers.
- Provide mechanisms through which stakeholders can actively participate in the statewide dialog. This will be accomplished by:
 - Sponsoring communications and interoperability forums where officials can learn about current challenges and plans, provide input into the process, or learn how to get involved.
 - Routinely posting and updating interoperability information on the TxRC Web site.
 - Identifying and executing additional outreach mechanisms that reach stakeholder audiences.

The TxRC Web site will be further developed with suggestions, recommendations and requirements for regional and statewide interoperability based on the SAFECOM Continuum and the Texas SCIP. Practitioners will be able to access:

- Recommended technology migration strategies
- Templates and instructions on developing regional, integrated SOPs that include interoperable communications
- Funding information
- Resources available for assistance

Policy makers will be able to access:

- Major achievements and challenges
- Performance to goals
- Projects funded
- A high-level timeline with major milestones achieved in the quest for interoperability

An announcement and link to the Texas SCIP site will be placed on the Web sites of state and local agencies, non-governmental agencies, public safety organizations and elsewhere.

The Outreach Program will be a priority for the Texas SWIC, with the education of stakeholders ranking highest. .

6.3 Short-Term and Long-Term Initiatives

These initiatives are the result of a collaborative process to identify action items to overcome the communications operability and interoperability gaps. The initiatives are listed here as prioritized at the Statewide Strategic Planning Session. Each initiative is linked back to one or more of the five interoperability elements identified in the SAFECOM Continuum and a SCIP Goal.

Short Term Initiatives:

Initiative #1 / SC-Governance: Identify new and existing sources of funding in Federal grants; state, county and local budgets; taxes; bonds; motor vehicle license fees; traffic violation fines; and elsewhere for interoperable communications equipment, infrastructure, backhaul, upgrades, ongoing maintenance and call center expenses.

Linked to Goal #5: Develop a funding plan that will generate the funding resources necessary to acquire and sustain statewide voice and data communications interoperability.

Assigned to: Funding Working Group

Tasks: Develop a funding mechanism to fund interoperable communications equipment, upgrades, back-haul expenses and ongoing maintenance.

Estimated Short-Term cost: N/A – service to be provided by the Funding Working Group.

Initiative #2 / SC-Technology: Provide operability throughout the state.

Linked to Goal #3: Achieve close to 100-percent statewide coverage for all public safety voice and data communications interoperable networks.

Assigned to: Technology and Funding Working Groups

Tasks: Identify radio communications operability gaps through user surveys and CASM data analysis. Prioritize funding for operability.

Estimated Short-term cost: Costs are unknown at this time. Costs are dependent on CASM entry and individual agency efforts.

Initiative #3 / SC-Technology: Leverage existing investments in Regional Interoperability Systems and infrastructure when developing and networking statewide interoperability systems.

Linked to Goal #3: Achieve close to 100-percent statewide coverage for all public safety voice and data communications interoperable networks.

Assigned to: Technology Working Group

Tasks: Where they do not currently exist, form regional interoperability working groups to build new or expand existing regional communications systems. Identify, post and maintain regional interoperability working groups' information and meeting schedules on the TxRC Web site. Capitalize on the existing regional communications systems for long-term interoperability.

Estimated Short-term cost: Short-term costs will be absorbed by individual participating agencies.

Initiative #4 / SC-Governance: Secure consistent funding for ongoing development, capital replacement and maintenance costs.

Linked to Goal #1: Establish statewide voice and data interoperability as a high priority for all stakeholders.

Assigned to: Executive Committee and Funding Working Group

Tasks: Schedule regular monthly meetings to educate key Federal, state, regional, local and tribal policy makers regarding the need for interoperable communications.

Estimated Short-term cost: TBD

Initiative #5 / SC- Usage: Promote state legislation that enforces timely and cost-efficient execution of strategic plan initiatives that support statewide communications and interoperability.

Linked to Goal #2: Achieve voice and data interoperability by institutionalizing collaborative approaches across the state based on common priorities and consensus at the regional level.

Assigned to: Executive Working Group and Funding Working Group

Tasks: Identify and enlist a legislative champion/sponsor to legislate ongoing funding for development, capital replacement and maintenance costs of interoperable communications.

Estimated Short-term cost: TBD

Initiative #6 / SC-Training and Exercises: Evaluate existing state, local, tribal, Federal and non-governmental training programs and schedules. Draft a proposal for improving responder efficiency and effectiveness through integrated, coordinated (including Federal and tribal if appropriate), frequent and routine user-friendly training programs that utilize existing responder and dispatch equipment with mandated evaluations and certifications.

Linked to Goal #4: Facilitate integrated SOPs and Training Programs to enhance effective use of voice and data interoperable communications systems.

Assigned to: TxRC SOP and Training and Exercise Working Group

Tasks: Identify concerns and recommendations for training and exercise programs. Develop templates for SOPs and drills that can be incorporated into and augment the state's existing training and exercise program. Identify regional Communications Unit Leaders and provide necessary training.

Estimated Short-term cost: TBD

Initiative #7/ SC-Technology: Establish and mandate the technology standard for the Texas SCIP and provide a migration path.

Linked to Goal #3: Achieve close to 100-percent statewide coverage for public safety voice and data communications interoperable networks.

Assigned to: Technology Working Group

Tasks: The Working Group's technology recommendation for future radio interoperability has been discussed and approved by the TxRC. 1) Name the SCIP technology standard; 2) Establish a minimum level for new communications equipment purchases in accordance with SCIP; and 3) Work with designated agents to develop regional migration plans to achieve interoperable communications.

Estimated Short-term cost: To be determined by capabilities assessment.

Initiative #8 / SC-Standard Operating Procedures: Promote the need for additional state and Federal Mutual Aid Interoperability Channels in the 800 MHz and VHF frequency bands. Fund infrastructure for implementation of all mutual aid channels (800 MHz, 700 MHz, VHF and UHF).

Linked to Goal #4: Facilitate integrated SOPs and Training Programs to enhance effective use of voice and data interoperable communications systems.

Assigned to: Governance and SOP/Training and Exercise Working Groups

Tasks: 1) Through regional collaboration, identify best placement and use of mutual aid interoperability infrastructure; identify and implement channels if any are deemed available; and 2) Develop a plan to solicit support for additional mutual aid communications channels and distribute to state and national associations such as APCO, International Association of Chiefs of Police, etc.

Estimated Short-term cost: TBD

Initiative #9 / SC-Usage: Validate agency radio communications capabilities and survey results utilizing CASM. Develop a plan to routinely update CASM.

Linked to Goal #2: Achieve voice and data interoperability by institutionalizing collaborative approaches across the state based upon common priorities and consensus at the regional level.

Assigned to: Capabilities Working Group

Tasks: Identify and establish a CASM Liaison Agent to work with the public safety agencies on the data entry requirement. Develop a validation process and timeline for data entry.

Estimated Short-term cost: TBD

Top Long-Term Initiatives:

Initiative #1 / SC Technology: Migrate the radio assets within the state to ensure that standards-based, shared systems are operating with or within 700 MHz.

Linked to Goal #3: Achieve close to 100-percent statewide coverage for public safety voice and data communications interoperable networks.

Assigned to: Technology Working Group

Tasks: Define a “system-of-systems” evolution through the development of regional systems migration plans, which ensure standards-based, shared systems operating with or within 700 MHz.

Initiative #2 / SC Usage: Provide permanent, multiple-band monitoring and patching capabilities for all designated mutual aid/interoperability channels for immediate use at all call centers.

Linked to Goal # 2: Achieve voice and data interoperability by institutionalizing collaborative approaches across the state based upon common priorities and consensus at the regional level.

Assigned to: Executive Committee and Governance Working Group

Tasks: Develop a governance structure to facilitate shared equipment and infrastructure between regional and statewide partners.

Initiative #3 / SC-Governance: Implement an IP interface between regional interoperable communications systems and the statewide IP-based system.

Linked to Goal #1: Establish statewide voice and data interoperability as a high priority for all stakeholders.

Assigned to: Governance Working Group

Tasks: Meet with TDEM to draft an IP-interface plan.

Initiative #4 / SC- Training and Exercises: Provide online training programs with testing and certifications.

Linked to Goal #4: Facilitate integrated SOPs and Training Programs to enhance effective use of voice and data interoperable communications systems.

Assigned to: SOP, Training and Exercise Working Group

Tasks: Meet with the TDEM Training Programs Unit to plan and develop requirements for on-line training and certifications.

6.4 Eligibility for State and Federal Grant Funds

To be eligible for state and Federal grant funding for any communications equipment in FY2008 and future years, applicants must comply with the following:

1. When procuring equipment for communication system development and expansion, a standards-based approach should be used to begin migration to multi-jurisdictional and multi-disciplinary interoperability. *Specifically, all new voice communication radio systems shall be compliant with the P25 suite of standards. (This guidance does not preclude funding of non-P25 equipment when there are compelling reasons for using other solutions. Such exception may be approved by the TDEM.) Applicants seeking grant funding for the creation, enhancement or expansion of a radio communication system utilizing the P25 standards shall have a “procedure” in place by which external (outside) public safety and critical infrastructure responder agencies are permitted to communicate on designated P25 system interoperable talkgroups (regardless of manufacturer subscriber equipment brand name) using frequencies within the P25 system. TDEM may require details on an applicant’s “procedure,” and sample copies of MOUs or other agreements by which applicant manages or proposes to manage such “procedure.”*

Note: System operators are not being mandated to allow "outside" agencies to use the systems for day-to-day operational purposes. Likewise, system operators are not being told that other manufacturer brands have to be allowed onto the systems for use by existing or future system users/members. What this provision IS INTENDED to promote, however, is designation of P25 (digital) talkgroups within systems that outside agencies can use during mutual aid or critical incident events, regardless of equipment brand (which is the purpose of the P25 standards - interoperability). The burden on acquiring P25 Phase One compatible subscriber equipment will be on the outside agencies. In their MOUs or Interlocal Agreements with these outside agencies, system owners may want to insert disclaimer of liability for failure of functionality or feature sets of the outside agency subscriber units (not all brands support the same “feature sets”).

2. Grant requests must support at least one of the five goals or initiatives presented within this SCIP.

3. Applicants must be able to clearly define how the project or equipment purchase improves interoperable communications on a multi-disciplinary and multi-jurisdictional basis.

4. Applicants must be NIMS-compliant. For more information please visit <http://www.fema.gov/nims>.

5. Applicants must have entered current information on communications assets into CASM prior to acquisition of new grant funded equipment, and complete within six months.

6. Applicants must be named on a Regional Integrated Communications SOP.

7. Applicants must comply with all training requirements of this SCIP.

8. Applicants must comply with all technical requirements of this SCIP.
9. Applicants must certify agreement to the Texas SCIP Governance Structure and Charter and comply with, and abide by, all other SCIP requirements, guidelines and procedures.
10. Applicants must be able to provide the required matching funds as outlined in the applicable grant guidance.
11. Applicants must meet state interoperable channel requirements for new dispatch consoles and mobile and portable radios.
12. Applicants must have executed the Texas Statewide Interoperability Executive Committee / Texas Department of Public Safety MOU regarding use of, and adherence to, the current TSICP.
13. All subscriber mobiles and portables procured with Federal or state grant funds after May 1, 2008, that operates in the 800 MHz band shall also have the capability of operating in the 700 MHz band.

6.5 Critical Success factors

(Criteria 10.7)

The essential factors to the success of this SCIP are the responsibility of the State Legislature and plainly stated in the following initiatives:

- Governance – to "promote state legislation that enforces timely and cost-efficient execution of strategic plan initiatives which support state-wide communications and interoperability."
- Funding – to "identify new and existing sources of funding in budgets, taxes, bonds, motor vehicle license fees, traffic violation fines, road taxes and/or elsewhere for interoperable communications equipment, infrastructure, backhaul, upgrades, ongoing maintenance and call center expenses" and to establish "consistent funding for ongoing development, capital replacement and maintenance costs."

Additional success factors include:

- The agreement and commitment of public safety agencies to plan collaboratively with neighbor agencies before buying communications equipment.
 - Invest in shared regional communications infrastructure.
 - At every opportunity, seek commitments from partners to improve and test interoperability resources, operations, policies and economic options.
- Design connections and systems based on what is currently in place and what users need.

- Individual systems need stand-alone value, serve ability – one system leaving does not affect the rest of the system, and sub-systems need multiple connection possibilities.
- System capability must have the ability to dial up or dial down for any given incident.
- Having talented people and agility across the Continuum.
 - Train in operational contexts, and provide continuous feedback to build flexible people and teams.
- Multi-agency, multi-jurisdiction command communications.
 - Predict circumstances and identify roles that need to talk to one another.
 - Determine Who, When, How Much and How Often
 - Plan methods to effectively and efficiently share information between people and agencies
 - Know how those connections will be managed:
 - ◆ In day-to-day use for common events
 - ◆ In an unusual incident
 - ◆ In a disaster beyond the capabilities of local resources

6.6 Developing and Overseeing Operational Requirements, SOPs, Training, Technical Solutions, & Short- and Long term Funding Sources

(Criteria 10.5)

Comprehensive plans for developing SOPs and training programs have been established by the working groups. Regions completed and submitted Regional Interoperable Communications Plans, which consisted of Regional Governance, Regional Interoperable Migration Plans and Regional SOPs on April 15, 2010.

The short-term funding plan is to prioritize funds for immediate and critical interoperability needs. Regional detailed funding requirements will be addressed in Round 2 of the RICP. The Working Groups will oversee individual SCIP requirements (e.g. SOPs, training) and entities not meeting the established SCIP requirements will not be eligible for interoperable communications grant funding.

Prior to Focus Group Sessions, and before submitting SOPs, training, technology migration timelines and detailed funding plans to the Executive Committee, the TxRC Steering Committee will review, evaluate and modify documentation as required, then vote to approve and send forward, or vote to send back to the Working Group for additional information.

7 Funding

Local, state, tribal and Federal governments make the most of available funding through infrastructure sharing for radio towers and facilities and shared channels.

Regions and local governments are sharing deployable communications vehicles or equipment sets that can be used to provide emergency communications in areas of the state where it is unfeasible to install permanent communications infrastructure.

However, additional funding sources must be developed. As stated in the first Governance initiative, the Executive Committee and Funding Working Group will *actively “promote state legislation that enforces timely and cost-efficient execution of strategic plan initiatives which support statewide communications and interoperability.”*

Work is underway to educate the Texas Legislature on the critical need for establishing a sustained funding mechanism for operations and maintenance, as well as identifying an entity or group to oversee the management and funding of the network linking the P25 radio systems together. This body will also be responsible for providing the necessary leased lines and data circuits to the participating agencies and for the recurring funding costs.

In addition to seeking the establishment of a recurring funding mechanism from the State Legislature, the Funding Working Group has identified various grants as anticipated sources of funding. Information on these funding sources will be placed on the TxRC Web site for use by public safety agencies and, where appropriate, actively pursued by the Funding Working Group as future sources of short- or long-term funding. Research to identify future sources of funding programs will be an ongoing endeavor of the TxRC.

Table 14 - Anticipated Funding Sources and Funding for SCIP Implementation

Texas SCIP Anticipated Funding Sources & Funding for FY 2008, 2009, 2010						
Sources of Anticipated Funding		Award	2008	2009	2010	— Total — 3 Year Identified Project Funding
			<i>Distributions are dependent upon available funding</i>			
PSIC Grant		\$65,069,247	\$43,577,652	\$0	\$0	\$43,577,652
	Strategic Technology Reserve	\$5,039,518	\$5,039,518			\$5,039,518
SHSP (25%)		\$34,400,000	\$8,600,000	\$8,600,000	\$8,600,000	\$25,800,000
LETPP (25%)		\$24,560,000	\$6,140,000	\$6,140,000	\$6,140,000	\$18,420,000
Urban Area (25%)	Houston Area	\$25,000,000				\$0
	Dallas/Fort Worth/Arlington Area	\$20,950,000				\$0
	El Paso Area	\$5,840,000				\$0
	San Antonio Area	\$6,750,000				\$0
Texas Legislature				\$60,000,000	\$60,000,000	\$120,000,000
TOTAL			\$0	\$0	\$0	\$212,837,170
Note: Only 25% of award is typically allotted for interoperable communications due to other critical needs for equipment and training to hazardous materials, IEDs and other situations. PSIC Grant is less pre-designated Tier I UASI funds, and M&A.						

Table 15 - Possible Additional Sources of Funding

ADDITIONAL Sources of Possible Funding for Texas Public Safety Interoperable Communications <i>Distributions are dependent upon available funding</i>				
Sources of Possible Funding	2008	2009	2010	— Total — 3 Year Identified Project Funding
DHS: Transit Security* (1% of avg.)	\$9,000	\$9,000	\$9,000	\$27,000
DHS: Port Security* (1%)	\$105,000	\$105,000	\$105,000	\$315,000
DHS: Intercity Bus Security* (.5%)	\$1,500	\$1,500	\$1,500	\$4,500
DHS: Buffer Zone Protection* (25%)	\$1,625,000	\$1,625,000	\$1,625,000	\$4,875,000
Assistance to Firefighters Grant**	\$1,000,000	\$1,000,000	\$1,000,000	\$3,000,000
DOJ				\$0
Byrne** (when available)	\$0			\$0
JAG*	\$20,000	\$20,000	\$20,000	\$60,000
COPs** (when available)	\$0			\$0
DOT*				\$0
SAFETEA-LU Program	\$150,000	\$300,000	\$500,000	\$950,000
State-funded Border Security Initiative	\$13,719,205	\$13,719,205		\$27,438,410
Texas Forest Service (towers)	\$100,000	\$100,000	\$100,000	\$300,000
Total				\$36,969,910
Legend: (%) and the \$\$ shown in that category identifies the percentage of funding that is typically used and/or a new goal from this grant for interoperable communications. *These are possible sources of funding with specific allocations to Texas and specific requirements. \$\$ shown are goals for Texas SCIP. **These are possible sources of funding with no specific allocations to states or agencies. Applications are very competitive. \$\$ shown are goals for Texas SCIP.				

The information provided from CASM will be used to help identify ongoing back-haul and connectivity costs plus anticipated costs for resources and equipment. The Funding Working Group will use this information to develop a formal plan to provide dedicated funding streams

Table 16 - Total SCIP Project / Budget Summary FY 2008 – FY 2010

SCIP NEEDS / FUNDING SUMMARY FY 2008 - FY 2010			
	Interoperability Needs Summary	Estimated Cost to Meet Needs	2008 - 2010 Anticipated Funding & Sources
	Total Regional Needs and Estimated Cost FY 2008 - FY 2010	\$361,980,282	
	Total Urban Area Needs and Estimated Cost FY 2008 - FY 2011	\$365,055,000	
	Total State Agencies Needs and Estimated Cost FY 2008 - FY 2012	\$66,665,250	
	Funding Summary	<i>Distributions are dependent upon available funding</i>	
	SCIP Anticipated Funding		
	SCIP Additional Possible Funding		\$212,837,170
	Urban Areas Identified Funding		\$36,969,910
			\$174,110,000
Total Texas SCIP Interoperability Needs / Funding Summary FY 2008 - FY 2010		\$793,700,532	\$423,917,080

The critical interoperability needs will be evaluated in relationship to the SCIP initiatives and goals, prioritized and implemented as funding is appropriated. This data will be updated frequently.

8 Conclusion and Next Steps

More than 2

Close to 25 million people call Texas home. They live in communities that range in population from fewer than 100 to more than 3 million. Texans believe that if you are one of the 67 citizens of Loving County or if you live in the major metropolitan area of Houston, the public safety agencies that serve you should have similar training and be able to provide similar services.

At a Statewide Strategic Planning Session, more than 130 Texans, representing the interests of 5,300 public safety agencies, prioritized the next steps to achieve interoperability for all public safety agencies throughout Texas as follows:

1. Ensure operability
2. Provide interoperable solutions
3. Upgrade and expand regional shared systems

Also, high on the list of prioritized initiatives is training and exercises, and coordination of multiple agencies. The TxRC and state agencies will be assisting the regions as they revise or create regional, *user-friendly* SOPs and training programs. The new training and exercise programs will be evaluated and modified as needed. Training instructors will schedule programs for each region.

The priorities of this SCIP will be to improve interoperability among local, tribal, state and federal entities through partnerships that:

1. Build a Governance structure that addresses the needs of the urban areas, Critical Infrastructure and Key Resources, local and state agencies, as well as those of the Emergency Services Districts, tribal nations and volunteer fire departments.
2. Mandates the provision of SOPs that include interoperable communications activities:
 - A. That are included in realistic regional SOPs, which provides for the integrated activities of state, local and Federal responders.
 - B. That are easily accessed and studied by all local, state, tribal, Federal, non-governmental and local emergency responders.
 - C. Which incorporate NIMS requirements in disaster management and incident command operations.

3. Prioritizes and builds out 1) operability and interoperability simultaneously; 2) interoperability within existing systems; and 3) regional systems into standards-based interoperable systems, all while meeting current and future needs. This will be accomplished:
 - A. By providing operability and interoperability where needed with the installation of shared Texas Interoperability Channels.
 - B. By ensuring all Federally and state-funded communications equipment purchases:
 - 1) Are required by the agency to be NIMS and Occupational Safety and Health Administration (OSHA) compliant.
 - 2) Serve specific interoperability needs such as designated interoperability/ mutual aid infrastructure (shared Texas Interoperability channels), patches, gateways or switches.
 - 3) Serve Strategic Technology Reserve requirements.
 - 4) Meet the SAFECOM P25 “Compliance Assessment Requirements” found at <http://www.safecomprogram.gov/NR/rdonlyres/F40FA131-4193-4F85-856C-B735A1547168/0/GRANTGUIDANCEPROJECT25EXPLANATORYADDENDAv2.pdf>.
4. Provides and requires Interoperable Communications training, along with any and all emergency response and disaster management training, and exercises, at the regional level. This training is to be made available to all responders through various means such as classroom training, table-top drills, online and/or distributed workbooks.
5. Encourages regular usage of interoperable communications equipment with drills to exercise individual public safety agency and regional disaster management operational requirements for gateways and console patches.
6. Designs interoperable communications systems to serve as the primary communications system for public safety agency operations within a region.

Appendix A Participating Agencies and Points of Contact

The following list identifies those who attended the ICTAP workshop on September 11-12, 2007; however, many representatives of different disciplines across the state participated via the survey and regional workshops.

CATEGORY	TITLE and AGENCY	REGION	NAME	ADDRESS	E-MAIL ADDRESS
Governor's Office	Homeland Security Governmental Affairs Coordinator, Office of the Governor	State	Vacant	Office of the Governor, 1100 San Jacinto Avenue, Austin, TX 78701	
State and Local Elected Officials	City of Austin, City Councilman	Region 12, CAPCOG	Martinez, Mike	City Hall, 301 W. 2 nd St. 2 nd Floor, Austin, TX 70701	Mike.Martinez@ci.austin.tx.us
State and Local Emergency Medical Services	Communications Director, East Texas Medical Center	Region 6, ETCOG	Haislet, Jeff	ETMC – EMS, 352 S. Glenwood, Tyler, TX 75702	jhaislet@etmc.org
State and Local Health Officials	Radio Systems Manager, Montgomery Co Health Dept, City of Conroe	Region 16, HGAC	Evans, Justin	299 George Strake Blvd., Conroe, TX 77304	jevans@mchd-tx.org
State and Local Fire Response Services	Assistant State Fire Marshal, Texas Dept. of Insurance	Statewide	Bishop, Richard	State Fire Marshal's Office, PO Box 149221, MC-112-FM, Austin, TX 78714-9221	richard.bishop@tdi.state.tx.us
State and Local Fire Response Services	City of Arlington, 620 W Division, Arlington, TX 78610	Region 4, NCTCOG	Eads, Gerard		Gerard.Eads@arlingtontx.gov
State and Local Fire Response Services	City of Keller	Region 4, NCTCOG	King, Kelly B.		kking@kellerfd.com
State and Local Fire Response Services	Communication Specialist, Austin Fire Department	Region 12, CAPCOG	Wilks, Gary	Austin Fire Department, 4201 Ed Bluestein Blvd., Austin, TX 78723	gary.wilks@ci.austin.tx.us
State and Local Fire Response Services	Division Manager, Houston Fire Dept.	Region 16, HGAC	Newman, Stanley (Wayne)	1205 Dart St., Houston, TX, 77007	wayne.newman@cityofhouston.net
State and Local Fire Response Services	FAO Technical Services, San Antonio Fire Department	Region 18, AACOG	Andreas, Dwight	115 Auditorium Circle, San Antonio, TX 78205	dwight.andreas@sanantonio.gov
State and Local Fire Response Services	Firefighter, San Antonio Fire Department	Region 18, AACOG	Davenport, William	San Antonio Fire Department, 115 Auditorium Circle, San Antonio, TX 78205	wdavenport@sanantonio.gov

State and Local Fire Response Services	Midland County/ Greenwood VFD	Region 9, PBRPC	Ligon, Lee	6301 S. County Road 1065, Midland, TX 79706	ligonle@gmail.com
State and Local Law Enforcement	Captain Game Warden/Division Inspector, Tx Parks and Wildlife	Statewide	Teeler, Gary	TPWD, 4200 Smith School Rd, Austin, TX 78744	gary.teeler@tpwd.stat e.tx.us
State and Local Law Enforcement	Chief Deputy, Uvalde County Sheriff's Office	Region 24, MRGDC	Medina, Raul	121 E. Nopal St., Uvalde, TX 78801	rmedina@leo.gov
State and Local Law Enforcement	Chief of Police, City of West Orange	Region 15, SETRPC	Stelly, Michael	West Orange PD, 2700 Austin Ave., West Orange, TX 77630	mstelly@cityofwestor ange.com
State and Local Law Enforcement	Communications Manager, El Paso Police Department	Region 8, RGCOG	Kozak, Mary	911 North Raynor, El Paso, TX 79903- 4136	MaryK@elpasotexas. gov
State and Local Law Enforcement	Department of Public Safety	Statewide	Bearden, Brad	PO Box 4087, Austin, TX 78773	brad.bearden@txdps. state.tx.us
State and Local Law Enforcement	Department of Public Safety	Statewide	Early, Todd		todd.early@txdps.stat e.tx.us
State and Local Law Enforcement	Kerrville Police Dept.	Region 18, AACOG	Wendling, Jeffrey L.	429 Sidney Baker, Kerrville, TX 78028	jeffreyw@kerrville.org
State and Local Law Enforcement	Lieutenant, City of Houston Police Dept.	Region 16, H-GAC	Casko, Steve	8300 Mykawa Rd., Houston, TX 77048	stephen.casko@city of Houston.net
State and Local Law Enforcement	Lieutenant, Montgomery County Sheriff's Office	Region 16, HGAC	Park, David	#1 Criminal Justice Dr Conroe, Texas 77301	david.park@mctx.org
State and Local Law Enforcement	Lt., Bellville Police Dept.	Region 16, HGAC	Blakey, David	City of Bellville Police Dept., 20 S. Harris St., Bellville, TX 77418	david.blakey@sbcglo bal.net
State and Local Law Enforcement	Program Director, Texas Dept. of Public Safety	Statewide	Pletcher, Robert	DPS, 5805 N. Lamar Blvd., Austin, TX 78751	robert.pletcher@txdp s.state.tx.us
State and Local Law Enforcement	Sergeant Investigator, Alice Police Department	Region 20, CBCOG	Valadez, Raul David	415 E. Main St., Alice, TX 78332- 4968	cid417@cityofalice.or g
State and Local Law Enforcement	Sergeant, Midland County Sheriff's Office	Region 9, PBRPC	McDaniel, B. John	PO Box 11287, Midland, TX 79702	bjohn_mcdaniel@co. midland.tx.us
State and Local Law Enforcement	Sheriff, Refugio County	Region 20, CBCOG	Petropoulos, Earl	Refugio County Sheriff's Office, PO Box 1022, Refugio, TX 78337	earlpetropoulos@yah oo.com

State and Local Law Enforcement	Technical Services Mgr., Wichita Fall Police Dept.		Region 3, NORTEX	Vasquez, John	610 Holliday St., Wichita Falls, TX 76301	john.vasquez@wfpd.net
State and Local Emergency Management	TDEM/SAA Lamar Blvd. 78752	5805 N. Austin, TX	Statewide	Enriquez, Oswald	Governor's Division of Emergency Management, 5805 N. Lamar Blvd., Austin, TX 78752	oswald.enriquez@txdpx.state.tx.us
State and Local Emergency Management	TDEM/SAA Lamar Blvd. 78752	5805 N. Austin, TX	Statewide	Urtado, Joe	5805 N. Lamar Blvd., Austin, TX 78752	Joe.urtado@txdps.state.tx.us
State and Local Emergency Management	TDEM/SAA Lamar Blvd. 78752	5805 N. Austin, TX	Statewide	Wilson, Kenneth	Texas DPS, 5805 N. Lamar, Austin, TX 78752	kenneth.wilson@txdps.state.tx.us
State and Local Emergency Management	City of Arlington		Region 4, NCTCOG	Patterson, Ben		Ben.patterson@arlingtontx.gov
State and Local Emergency Management	Emergency Management Coordinator, Hidalgo County		Region 21, LRGVDC	Pena, Tony	PO Box 1356, Edinburg TX 78539	tony.pena@co.hidalgo.tx.us
State and Local Emergency Management	TDEM/SAA Lamar Blvd. 78752	5805 N. Austin, TX	Statewide	Sheffield, Mike	5805 N. Lamar, Austin, TX 78752	mike.sheffield@txdps.state.tx.us
State and Local Emergency Management	TDEM/SAA Lamar Blvd. 78752	5805 N. Austin, TX	Statewide	Hood, Cindy	Texas DPS, 5805 N. Lamar Blvd., Austin, TX 78752	cindy.hood@txdps.state.tx.us
State and Local Emergency Management	TDEM/SAA Lamar Blvd. 78752	5805 N. Austin, TX	Statewide	Phillips, Jeanette	5805 N. Lamar Blvd Austin, TX 78752	jeanette.phillips@txdps.state.tx.us
State and Local Homeland Security Offices	Mayor's Office of Homeland Security, Houston Police Dept.		Region 16, HGAC	Macha, Michael	Mayor's Office of Homeland Security 900 Bagby, MOPSHS, Houston, Texas 77002	michael.macha@cityofhouston.net
State and Local Transportation Agencies	Network Specialist III, Texas Dept. of Transportation		Statewide	Brewer, Joe	TXDOT, Attn. TRF-TM (CP 51), 125 E. 11th St., Austin, TX 78701	jbrewer1@dot.state.tx.us
State and Local Transportation Agencies	Network Specialist III, Texas Dept. of Transportation		Statewide	Gilbert, Paul	TXDOT, 125 E. 11th St., Austin, TX 78701	pgilbert@dot.state.tx.us
Military Organizations	Adj. General's Dept., Texas Military Forces		Statewide	Ray, Jim	2200 W. 35th St., Austin, TX	jim.ray.jr@us.army.mil
Military Organizations	Adj. General's Dept., Texas Military Forces		Statewide	Rodriguez, Frank Jr.	Texas National Guard, 2200 W. 35th St., Austin, TX	frank.rodriguez@tx.n gb.army.mil
Military Organizations	Adj. General's Dept., Texas Military Forces J6/CIO		Statewide	Bruno, Janice	TXMF, 2200 W. 35th St., Austin, TX 78703	janice.elaine.bruno@us.army.mil

Military Organizations	Adj. General's Dept., Texas Military Forces	Statewide	Bell, Micah	Texas National Guard, 2200 W. 35th St., Austin, TX	micah.bell@us.army.mil
Military Organizations	Adj. General's Dept., Texas Military Forces	Statewide	Zitta, Stephen	2200 W. 35th St., #33, Austin, TX	stephen.zitta@tx.ngb.army.mil
Military Organizations	Adj. General's Dept., Texas Military Forces	Statewide	Kaufman, Ronald	TXMF, 2200 W. 35th St., Bldg. 66, Austin, TX 78703	ronald.kaufmann1@us.army.mil
Military Organizations	Adj. General's Dept., Texas Military Forces	Statewide	Peluso, Victor	Texas Air National Guard, Camp Mabry, Austin, TX	victor.j.peluso@ng.army.mil
Federal Agencies	Regional Communications Coordinator, NCS/DHS	Federal	Burney, Michael	National Communications Systems / DHS, 10841 FM 1565, Terrell, TX 75160	Michael.burney@associates.dhs.gov
Federal Agencies	Trainer, FEMA	Federal	Rutherford, Larry		larry.rutherford@ngc.com
UASI – San Antonio	Communications Supervisor, San Antonio Fire Department	Region 18, AACOG	Tymrak, T. J.	San Antonio Fire Department, 214 W. Nueva, Room 218, San Antonio, TX 78207	ttymrak@sanantonio.gov
UASI - Houston	Deputy Director, Radio Communication Services, City of Houston	Region 16, HGAC	Sorley, Tom	City of Houston, 611 Walker St., Ste. 936, Houston, TX 77002	tom.sorley@cityofhouston.net
UASI – El Paso	Detective, El Paso Police Department	Region 8, RGCOG	Castillo, Patricia		castillo@elpasotexas.gov
UASI - Dallas	Dir. of Community Service and Communications, NCTCOG	Region 4, NCTCOG	Keithley, Fred	North Central Texas COG, 616 Six Flags Dr., Arlington, TX 76011	fkeithley@nctcog.org
UASI – San Antonio	Public Safety Comm Manager, Bexar County Sheriff's Office	Region 18, AACOG	Adelman, Robert M.	Bexar County Sheriff's Office, 203 W. Nueva, Suite 309, San Antonio, TX 78207	radelman@bexar.org
UASI – Dallas	Radio Services Manager, City of Fort Worth	Region 4, NCTCOG	Bottomf, Mark	City of Fort Worth, 1000 Throckmorton, Fort Worth, TX 76102	mark.bottomf@fortworthgov.org
UASI – El Paso	Regional Services Manager, Rio Grande Council of Governments	Region 8, RGCOG	Quintanilla, Marisa	Rio Grande Council of Governments, 1100 N. Stanton, Ste. 610, El Paso, Texas 79902	marisaq@riocog.org
UASI - Houston	Sr. Systems Technologist, Harris County	Region 16, HGAC	Chaney, John	Harris County Information Technology, 2500 Texas Ave., Houston, TX	john_chaney@co.harris.tx.us

UASI - Dallas	Wireless Architect, City of Dallas	Region 4, NCTCOG	Scrivner, Dan	City of Dallas, 3131 Dawson, Dallas, TX 75226	j.scrivner@dallascityhall.com
Critical Infrastructure	LCRA	Multi-Region	Havins, Jimmy Don - P.E.		jhavins@lcra.org
Critical Infrastructure	LCRA	Multi-Region	Silva, Saul		Saul.silva.@lcra.org
Critical Infrastructure	Brazos River Authority (BRA)	Multi-Region	Spiewak, Daryl	BRA, 4600 Cobbs Dr., Waco, TX 76710	daryls@brazos.org
Other Non-government Organizations, Such as the Red Cross and Utility Companies	LCRA	Multi-Region	Ervin, Jason		jervin@lcra.org
Other Non-government Organizations, Such as the Red Cross and Utility Companies	LCRA	Multi-Region	Gibbons, Mike		mgibbons@lcra.org
Other Organizations	Assistant Director, Lower Rio Grande Valley Development Council	Region 21, LRGVDC	Cruz, Manuel	Lower Rio Grande Valley Development Council, 311 N. 15th St., McAllen, TX 78501	mcruz@lrgvdc.org, m.cruzer113@hotmail.com
Other Organizations	Bell County Communications	Region 23, CTCOG	Blowers, William	708 West Ave. O, Belton, TX 76513	william.blowers@co.bell.tx.us
Other Organizations	Bell County Communications	Region 23, CTCOG	Cross, Dalton	708 W. Ave. O, Belton, TX 76655	dalton.cross@co.bell.tx.us
Other Organizations	Business Analyst, City of Austin	Region 12, CAPCOG	Guerrero, Arletha		arletha.guerrero@ci.austin.tx.us
Other Organizations	Chief Information Officer, City of Austin	Region 12, CAPCOG	Vacant		
Other Organizations	City of Austin Consultant		Heydinger, Ted		news@capitaltech.us
Other Organizations	City of College Station	Region 13, BVCOG	Hare, Mike	310 Krenek Tap Rd, College Station, TX 77840	mhare@cstx.gov
Other Organizations	City of El Paso	Region 8, RGCOG	Johnson, Chris		johnsonca@elpasotexas.gov
Other Organizations	City of Lockhart	Region 12, CAPCOG	Slaughter, Aaron	201 W. Market St., Lockhart, TX 78644	aslaughter@lockhart-tx.org
Other Organizations	City of San Angelo	Region 10, CVCOG	Perry, Ron		ronald.perry@sanangelotexas.us
Other Organizations	Communications Manager, City of Beaumont	Region 15, SETRPC	Standridge, Tommy	City of Beaumont, 620 Marina Dr., Beaumont, TX 77703	tstandridge@ci.beaumont.tx.us

Other Organizations	Dir., Homeland Security, Permian Basin Regional Planning Council	Region 9, PBRPC	Welch, Barney	Permian Basin Regional Planning Comm., PO Box 60660, Midland, TX 79711	bwelch@pbrpc.org
Other Organizations	Director of Homeland Security, Nortex Regional Planning Commission	Region 3, NORTEX	Kilgo, Mary	4309 Jacksboro Hwy, Suite 200, Wichita Falls, TX 76302	mkilgo@nortexrpc.org
Other Organizations	Director of Regional Services, Heart of Texas Council of Governments	Region 11, HOTCOG	Sullivan, Erica	Heart of Texas Council of Governments, 1514 S. New Road, Waco, TX 76711	erica.sullivan@hotmail.com
Other Organizations	Director, Homeland Security, Capital Area Council of Governments	Region 12, CAPCOG	Schaefer, Ed	Capital Area Council of Governments, 6800 Burleson Rd., Austin, TX	eschaefer@capcog.org
Other Organizations	Division Chief, Harris County	Region 16, HGAC	Dodson, David	2500 Texas, Houston TX 77002	david.dodson@itc.hctx.net
Other Organizations	Emergency Operations Planner, South Plains Assoc. of Governments	Region 2, SPAG	Murillo, Tommy	South Plains Assoc. of Governments, 1323 58th St., Lubbock, TX 79452	tmurillo@spag.org
Other Organizations	Fire Marshal / Emergency Management Coordinator, Parker County	Region 4, NCTCOG	Scott, Shawn	215 Trinity St, Weatherford, TX 76086	shawn.scott@parkercountytexas.com
Other Organizations	Harris County/CIO	Region 16, HGAC	Jennings, Steve		steve_jennings@co.harris.tx.us
Other Organizations	Homeland Security Coordinator, Coastal Bend Council of Governments	Region 20, CBCOG	Thomas, Robert "RJ"	Coastal Bend Council of Governments, 2910 Leopard St., Corpus Christi, TX 78469	rj@cbcogem.org
Other Organizations	Homeland Security Dir., Middle Rio Grande Development Council	Region 24, MRGDC	Anderson, Forrest	307 W. Nopal St., Carrizo Springs, TX 78834	Forrest.Anderson@mrgcdc.org
Other Organizations	Homeland Security Director, Alamo Area Council of Governments	Region 18, AACOG	McFarland, Don	Alamo Area Council of Governments, 8700 Tesoro Dr., San Antonio, TX	dmcfarland@aacog.com
Other Organizations	Houston-Galveston Area COG	Region 16, H-GAC	Brown, Heather	H-GAC, 3555 Timmons Ln, Ste 120, Houston, TX 77027	heather.brown@h-gac.com
Other Organizations	Inspector, Office of Audit and Inspection, DPS	Statewide	Duke, Karen		Karen.Duke@txdps.state.tx.us

Other Organizations	ITS Project Manager, City of Fort Worth	Region 4, NCTCOG	Jennings, Bryan	City of Fort Worth, 1000 Throckmorton St., Fort Worth, TX 76102	bryan.jennings@fortworthgov.org
Other Organizations	Major, Texas Parks and Wildlife Department	Statewide	Correa, Rolly	3615 South General Bruce Drive, Temple, TX 76504	rolly.correa@tpwd.state.tx.us
Other Organizations	Operations Manager, Galveston Co Emergency Communication District	Region 16, HGAC	Wilkins, Jack	1353 FM 646 W, Suite 101, Galveston, TX	jackw@galco911.org
Other Organizations	Operations Supervisor, City of Waco	Region 11, HOTCOG	Blare, Larry	P.O. Box 2570 Waco, TX 76702	larrybl@ci.waco.tx.us
Other Organizations	Public Services Dept. Director, Houston Galveston Area Council	Region 16, H-GAC	Vick, Deidre	HG-AC, PO Box 22777, Houston, TX 77227	dvick@h-gac.com
Other Organizations	Radio Communications Manager, City of Laredo	Region 19, STDC	Pruneda, Juan	1101 Garden St., Laredo, TX 78040-2403	jpruneda@ci.laredo.tx.us
Other Organizations	Radio Technician V, City of Austin Wireless Office	Region 12, CAPCOG	Farries, David	City of Austin Wireless Office, 1006 Smith Road, Austin, TX 78721	david.farries@ci.austin.tx.us
Other Organizations	Regional Radio System Master Site Supervisor, City of Austin	Region 12, CAPCOG	Pena, Mike	City of Austin Wireless Office, 1006 Smith Rd., Austin, TX 78721	mike.pena@ci.austin.tx.us
Other Organizations	Senior Telecommunications Specialist, City of El Paso	Region 8, RGCOG	Mendez, Frank	City of El Paso, Public Safety Technology Division, 8600 Montana Ave., Suite C, El Paso, TX 79925	mendezf@elpasotexas.gov
Other Organizations	Senior Telecommunications Technician, City of El Paso	Region 8, RGCOG	Natividad, Emilio	City of El Paso, Public Safety Technology Division, 8600 Montana Ave., Suite C, El Paso, TX 79925	natividadex@elpasotexas.gov
Other Organizations	Sheriff's Association		Sutherland, Carol		carolsutherland@SATX.rr.com
Other Organizations	Sheriff's Association of Texas		Peters, Joe		joe@txsheriffs.org
Other Organizations	TCEQ		Crunk, Kelly		kcrunk@tceq.state.tx.us
Other Organizations	Technical Services Manager, City of Austin Wireless Office	Region 12, CAPCOG	Boys, Mark	City of Austin Wireless Office, 1006 Smith Road, Austin, TX 78721	mark.boys@ci.austin.tx.us

Other Organizations	Telecommunications Coordinator, MRGDC	Region 24, MRGDC	Condry, Spade	Middle Rio Grande Development Council, 216 W. Main St., Uvalde, TX	spade@911planning.com
Other Organizations	Telecommunications Specialist, DHS/FEMA		Petty, Ronald	800 North Loop 288, Denton, TX 76209	ron.petty@dhs.gov
Other Organizations	Texas AandM University	Region 13, BVCOG	Parr, Lance	Mail Stop 1174, College Station, TX 77843-1174	l-parr@tamu.edu
Other Organizations	Texas Association of Regional Councils	Statewide	Ada, Michael S.	TARC, 701 Brazos, Ste. 780, Austin, TX	mada@txregionalcouncil.org
Other Organizations	Texas Parks and Wildlife	Statewide	Lange, Shawn		shawn.lange@tpwd.state.tx.us
Other Organizations	Williamson County Emergency Communications	Region 12, CAPCOG	Oldham, Gary		goldham@wilco.org
Other Organizations	Wireless Comm Services Manager	Region 12, CAPCOG	Simpson, Mike	City of Austin Wireless Office, 1006 Smith Road, Austin, TX 78721	mike.simpson@ci.austin.tx.us
Other Organizations	Wireless Comm Tech Services Manager, City of Austin	Region 12, CAPCOG	Allen, Gary	City of Austin Wireless Office, 1006 Smith Road, Austin, TX 78721	gary.allen@ci.austin.tx.us
Other Organizations	Wireless Manager, Travis County Emergency Services	Region 12, CAPCOG	Brotherton, Chuck	Travis County Emergency Services, PO Box 1748, Austin, TX 78767	charles.brotherton@co.travis.tx.us
Regional Planning Committee Chairperson for 700 and 800 MHz	Public Safety Technology Manager, City of El Paso	Region 8, RGCOG	Guinn, Bonnie	City of El Paso, 8600 Montana, Ste. C, El Paso, TX 79925	guinnv@elpasotexas.gov
Regional Planning Committee Chairpersons for 700 and 800 MHz	Radio System Engineer, City of Bryan	Region 13, BVCOG	Mayworm, Ron	PO Box 1000, Bryan, TX 77805	rmayworm@bryantx.gov

Appendix B Glossary of Terms

Analog	A signal that may vary continuously over a specific range of values.
Band	The spectrum between two defined limited frequencies. For example, the Ultra High Frequency (UHF) is located from 300 MHz to 3,000 MHz in the radio frequency spectrum.
Bandwidth	The range within a band of frequencies; a measure of the amount of information that can flow through a given point at any given time.
Channel	A single unidirectional or bidirectional path for transmitting or receiving, or both, of electrical or electromagnetic signals.
Communications interoperability	The ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.
Communications system	A collection of individual communication networks, transmission systems, relay stations, tributary stations, and data terminal equipment usually capable of interconnection and interoperation to form an integrated whole. The components of a communications system serve a common purpose, are technically compatible, use common procedures, respond to controls and operate in unison.
Coverage	The geographic area included within the range of a wireless radio system.
Digital	Voice communication normally occurs as an analog signal; that is, a signal with a voltage level that continuously varies. Digital signals occur as the presence or absence of electronic pulses, often representing only one of two values: a zero (0) or a one (1). Voice transmissions may be sent over digital radio systems by sampling voice characteristics and then converting the sampled information to ones and zeros.
First responders	Individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers, as well as emergency management, public health, clinical care, public works, and other skilled support (such as equipment operators) that provide immediate support services during prevention, response, and recovery operations.
Frequency	The number of cycles or events of a periodic process in a unit of time.
Frequency bands	Where land mobile radio systems operate in the United States, including: High HF 25-29.99 MHz Low VHF 30-50 MHz High VHF 150-174 MHz Low UHF 450-470 MHz UHF TV Sharing 470- 512 MHz 700 MHz 764-776/794-806 MHz 800 MHz 806-869 MHz
Grant	Funding made available to local agencies from State and Federal government agencies, as well as from private sources, such as foundations. Grants usually require the submission of a formal application to justify one's funding request.
Hertz	Abbreviation for cycles per second.
Infrastructure	The hardware and software needed to complete and maintain the radio communications system.
Interference	Extraneous energy, from natural or man-made sources, that impeded the reception of desired signals.
Jurisdiction	The territory within which power or authority can be exercised.
Local revenue fund	Funding obtained by local governments through local taxes (e.g. sales tax, property tax), user fees, and other user charges, as well as through the issuing of debt instruments, such as bonds.
Mutual aid	The mutual aid mode describes major events with large numbers of agencies involved, including agencies from remote locations. Mutual aid communications are not usually well planned or rehearsed. The communications must allow the individual agencies to carry out their missions at the event, but follow the command and control structure appropriate to coordinate the many agencies involved with the event.
Mutual aid channel	A radio channel specifically allocated for use during emergency mutual aid scenarios.
Narrow-banding	Generally, narrowband describes telecommunication that carries voice information in a narrow band of frequencies. For state and local public safety, narrow-banding typically refers to the process of reducing the useable bandwidth of a public safety channel from 25 kHz to 12.5 kHz. The FCC issued the migration of Private Land Mobile Radio systems using

	frequencies in the 150-174 MHz and 421-512 MHz bands to narrowband technology. These rules set deadlines on applications for new wideband systems, modifications of existing wideband systems, manufacture and importation of 25 kHz equipment, the requirement for public safety to migrate to 12.5 kHz systems by January 2018.
Receiver	The portion of a radio device that converts the radio waves into audible signals.
Refarming	An administrative process that is conducted by the FCC to reallocate channel bandwidths and, as a result, promote spectrum efficiency.
Repeater	In digital transmission, equipment that receives a pulse train, amplifies it, retimes it, and then reconstructs the signal for retransmission; in fiber optics, a device that decodes a low-power light signal, converts it to electrical energy, and then retransmits it via an LED or laser source. Also called a "regenerative repeater".
Spectrum	The region of the electromagnetic spectrum in which radio transmission and detection techniques may be used.
Spectrum efficiency	The ability to optimize the amount of information sent through a given amount of bandwidth.
Steering committee	A group of usually officials charged with proposing policy for a project.
Supplemental responders	<p>Responders who provide support to first responders during incidents requiring special assistance. Supplemental responders include:</p> <ul style="list-style-type: none"> • Emergency Management: Public protection, central command and control of public safety agencies during emergencies • Environmental Health/Hazardous Materials specialists: environmental health personnel • Homeland Security and Defense units • Search and Rescue teams • Transportation personnel
Transmitter	The portion of a radio device that sends out the radio signal.
Trunked radio system	A system that integrates multiple channel pairs into a single system. When a user wants to transmit a message, the trunked system automatically selects a currently unused channel pair and assigns it to the user, decreasing the probability of having to wait for a free channel for a given channel loading.

Appendix C Additional References and Resources

APCO – Association of Public-Safety Communications Officials, <http://www.apcointl.org/>

Building Exchange Content Using the Global Justice XML Data Model: A User Guide for Practitioners and Developers, June 2005. <http://it.ojp.gov/documents/GJXDMUserGuide.pdf>

Communications Technologies (CommTech), National Institute of Justice, <http://www.ojp.usdoj.gov/nij/topics/technology/communication/welcome.htm>

Guidance on Aligning Strategies with the National Preparedness Goal, July 22, 2005, http://www.ojp.usdoj.gov/odp/docs/StrategyGuidance_22JUL2005.pdf

Law Enforcement Tech Guide for Communications Interoperability; SAFECOM / COPS. 2006 SEARCH Group.

National Incident Management System (NIMS), <http://www.fema.gov/emergency/nims/index.shtm>

National Institute of Standards and Technology, <http://www.nist.gov/index.html>

National Response Framework, http://www.dhs.gov/xprepresp/committees/editorial_0566.shtm

NIEM (National Information Exchange Model) Bridging Information systems; <http://www.niem.gov/>

Office of the Governor, Rick Perry, <http://www.governor.state.tx.us/>

SAFECOM, <http://www.safecomprogram.gov/SAFECOM/>

SEARCH, the Online Resource for Justice and Public Safety Decision Makers; <http://www.search.org/>

Tactical Interoperability Communications Scorecards, http://www.dhs.gov/xprepresp/gc_1167770109789.shtm

UASI Tactical Interoperable Communications Plans, (secure documents, must contact POC for information)

Plans, training programs and numerous documents provided through various state and local agencies.

Appendix D SCIP Distribution List

Governor's Office	Homeland Security Governmental Affairs Coordinator, Office of the Governor	State	Vacant	Office of the Governor 1100 San Jacinto Avenue, Austin, TX 78701	
State and Local Emergency Medical Services	Vice President/COO, East Texas Medical Center EMS	Region 6	Tony Myers	ETMC – EMS, 352 S. Glenwood Blvd., Tyler, TX 75702	tmyers@etmc.or g
State and Local Fire Response Services	Fire Chief, San Antonio	Region 18	Charles N. Hood	116 Auditorium Cir., San Antonio, Texas 78205	charles.n.hood@ sanantonio.gov
State Law Enforcement	Director, Texas Department of Public Safety (DPS)	State	Col. Steve McCraw	Texas DPS 5805 North Lamar Blvd. Austin, Texas 78752- 4422	ADMIN.compact @txdps.state.tx.u s
Local Law Enforcement	Sheriff, Hidalgo County	Region 21	Lupe Trevino	711 El Cibolo Road Edinburg, Tx 78540	sherifftrvino@hi dalgo.org
State and Local Homeland Security Offices	Director, Homeland Security, State of Texas	State	Vacant	TDEM, PO Box 4087, Austin, TX 78773	
State and Local Transportation Agencies	Executive Director, Texas Department of Transportation	State	Amadeo Saenz	125 E. 11 th Street, Austin, TX 78701	asaenz@dot.stat e.tx.us
UA Security Initiative	CIO, Harris County, Texas	Region 16	Jennings, Steve	406 Caroline, 4 th Floor, Houston, TX 77002	steve_jennings@ co.harris.tx.us
Critical Infrastructure	Executive Manager of Corporate Services & CIO, Lower Colorado River Authority	Multi- Regional	Christopher Kennedy	3700 Lake Austin Blvd., Austin, TX 78703	ckennedy@lcra.o rg
Other Organizations	Chief Information Officer, City of Austin	Region 12	Vacant	625 E. 10th St., Suite 900, Austin, TX 78701	

Appendix E SCIP Working Groups Members List

WORKING GROUP	NAME	AFFILIATION	TITLE & AGENCY
Governance Group: Draft the Governance documents including the charter/mission statement, organization chart, rules and responsibilities, schedules and authority.	Brotherton, Chuck - - Chair	Urban, Capital Area -- Region 12, CAPCOG	Wireless Manager, Travis County Emergency Services
	Haislet, Jeff -- Co- chair	Rural, Non-Governmental, Medical -- Region 6, ETCOG	Communications Director, East Texas Medical Center
	Chaney, John	UASI Tier 1 -- Region 16, HGAC	Sr. Systems Technologist, Harris County
	Heydinger, Ted	Urban, Capital Area -- Region 12, CAPCOG	City of Austin Consultant
	Mayworm, Ron	Small Urban -- Region 13, BVCOG	Radio System Engineer, City of Bryan
	Peters, Joe	Statewide	Director, Border Research & Technology Center, Sheriff's Association of Texas
	Quintanilla, Marisa	UASI Tier 2 -- Region 8, RGCOG	Regional Services Manager, Rio Grande Council of Governments
	Simpson, Mike	Urban, Capital Area -- Region 12, CAPCOG	Wireless Comm Services Manager
Capabilities Assessment Group: Define the assessment scope, process and tools to gather the data; identify and engage the appropriate stakeholders; select a mechanism for capturing the data; manage outreach and support stakeholders encouraging their participation.	Chaney, John -- Chair	UASI Tier 1 -- Region 16, HGAC	Sr. Systems Technologist, Harris County
	Schaefer, Ed -- Co- chair	Urban, Capital Area -- Region 12, CAPCOG	Director, Homeland Security, Capital Area Council of Governments
	Wiatrek, Robin	Urban, Capital Area -- Region 12, CAPCOG	Regional Homeland Security Coordinator, Capital Area Council of Governments
Strategic Planning Group: Plan and facilitate Focus Group sessions; Develop a strategic initiative from "hot topics" generated from the survey and Focus Group sessions; Plan and facilitate Strategic Planning Session; Propose long-term vision for interoperability; identify key strategic initiatives for improving statewide interoperability.	Simpson, Mike -- Chair	Urban, Capital Area -- Region 12, CAPCOG	Wireless Comm Services Manager
	Mayworm, Ron -- Co-chair	Small Urban -- Region 13, BVCOG	Radio System Engineer, City of Bryan
	Bruno, Janice	Statewide, Military	Colonel, J6/CIO, Texas Military Forces
	Chaney, John	UASI Tier 1 -- Region 16, HGAC	Sr. Systems Technologist, Harris County
	Keithley, Fred	UASI Tier 2 -- Region 4, NCTCOG	Dir. of Community Service & Communications, NCTCOG
	McFarland, Don	UASI Tier 2 -- Region 18, AACOG	Homeland Security Director, Alamo Area Council of Governments
	Scrivner, Dan	UASI Tier 2 -- Region 4, NCTCOG	Wireless Architect, City of Dallas

WORKING GROUP	NAME	AFFILIATION	TITLE & AGENCY
Strategic Planning Group (cont'd):	Vick, Deidre	UASI Tier 1 -- Region 16, H-GAC	Public Services Dept. Director, Houston Galveston Area Council
Technology Group: Identify current systems technology and shared systems; identify available spectrum; research and identify new technologies that will promote and enhance interoperability; plan how to address data interoperability; develop interfaces among disparate systems; identify how to execute strategic initiatives; research use of evolving technologies and 700 MHz; suggest ways to improve spectrum efficiency.	Chaney, John -- Chair	UASI Tier 1 -- Region 16, HGAC	Sr. Systems Technologist, Harris County
	Ervin, Jason -- Co-chair	Critical Infrastructure, Water, Power	LCRA
	Adelman, Robert M.	UASI Tier 2 -- Region 18, AACOG	Public Safety Comm Manager, Bexar County Sheriff's Office
	Andreas, Dwight	UASI Tier 2, Fire -- Region 18, AACOG	FAO Technical Services, San Antonio Fire Department
	Bell, Micah	Statewide, Military	Emergency Communications Manager, TX National Guard
	Botdorf, Mark	UASI Tier 2 -- Region 4, NCTCOG	Radio Services Manager, City of Fort Worth
	Brewer, Joe	Statewide, Transportation	Network Specialist III, Texas Dept. of Transportation
	Crunk, Kelly	Statewide -- Texas Commission on Environmental Quality	TCEQ
	Davenport, William	UASI Tier 2, Fire --Region 18, AACOG	Firefighter, San Antonio Fire Department
	Dodson, David	UASI Tier 1 -- Region 16, HGAC	Division Chief, Harris County
	Eads, Gerard	UASI Tier 2 -- Region 4, NCTCOG	Arlington
	Evans, Justin	UASI Tier 1 -- Region 16, HGAC	Radio Systems Manager, Montgomery Co Health Dept, City of Conroe
	Farries, David	Urban, Capital Area -- Region 12, CAPCOG	Radio Technician V, City of Austin Wireless Office
	Gilbert, Paul	Statewide, Transportation	Network Specialist III, Texas Dept. of Transportation
	Guinn, Bonnie	UASI Tier 2 -- Region 8, RGCOG	Public Safety Technology Manager, City of El Paso
	Haislet, Jeff	Rural, Medical -- Region 6, ETCOG	Communications Director, East Texas Medical Center
	Hare, Mike	Small Urban -- Region 13, BVCOG	City of College Station
	Jennings, Steve	UASI Tier 1 -- Region 16, HGAC	Harris County/CIO
	Lange, Shawn	Statewide, Law Enforcement	Texas Parks & Wildlife

WORKING GROUP	NAME	AFFILIATION	TITLE & AGENCY
Technology Group (cont'd):	Ligon, Lee	Rural, Non-Governmental, Fire -- Region 9, PBRPC	Midland County / Greenwood VFD
	Mayworm, Ron	Small Urban -- Region 13, BVCOG	Radio System Engineer, City of Bryan
	McDaniel, B. John	Rural, Law Enforcement -- Region 9, PBRPC	Sergeant, Midland County Sheriff's Office
	Mendez, Frank	UASI Tier 2 -- Region 8, RGCOG	Senior Telecommunications Specialist, City of El Paso
	Natividad, Emilio	UASI Tier 2 -- Region 8, RGCOG	Senior Telecommunications Technician, City of El Paso
	Newman, Stanley (Wayne)	UASI Tier 1 -- Region 16, HGAC	Division Manager, Houston Fire Dept.
	Park, David	UASI Tier 1 -- Region 16, HGAC	Lieutenant, Montgomery County Sheriff's Office
	Pena, Mike	Urban, Capital Area -- Region 12, CAPCOG	Regional Radio System Master Site Supervisor, City of Austin
	Pena, Tony	Rural -- Region 21, LRGVDC	Emergency Management Coordinator, Hidalgo County
	Phillips, Jeanette	Statewide	Grant Coordinator, TXDPS TDEM SAA
	Pletcher, Robert	Statewide	Program Director, Texas Dept. of Public Safety
	Pruneda, Juan	Rural -- Region 19, STDC	Radio Communications Manager, City of Laredo
	Scott, Shawn	Rural, Fire, Emergency Management -- Region 4, NCTCOG	Fire Marshal / Emergency Management Coordinator, Parker County
	Scrivner, Dan	UASI Tier 2 -- Region 4, NCTCOG	Wireless Architect, City of Dallas
	Silva, Saul	Critical Infrastructure, Water, Power	LCRA
	Sorley, Tom	UASI Tier 1 -- Region 16, HGAC	Deputy Director, Radio Communication Services, City of Houston
	Standridge, Tommy	Small Urban -- Region 15, SETRPC	Communications Manager, City of Beaumont
	Stang, Dan	Statewide	
	Tymrak, T. J.	UASI Tier 2, Fire --Region 18, AACOG	Communications Supervisor, San Antonio Fire Department
	Vick, Deidre	UASI Tier 1 -- Region 16, H-GAC	Public Services Dept. Director, Houston Galveston Area Council

WORKING GROUP	NAME	AFFILIATION	TITLE & AGENCY
Technology Group (cont'd):	Wendling, Jeffrey L.	Rural, Law Enforcement -- Region 18, AACOG	Kerrville Police Dept.
	Wilks, Gary	Urban, Fire -- Region 12, CAPCOG	Communication Specialist, Austin Fire Department
Implementation Group: Develop a concrete implementation plan to address: migration, continuity of operations as new technologies are acquired; Back-up plans; Research and Recommend an Implementation Manager.	Haislet, Jeff -- Chair	Rural, Non-governmental, Medical -- Region 6, ETCOG	Communications Director, East Texas Medical Center
	Sorley, Tom -- Co-chair	UASI Tier 1 -- Region 16, HGAC	Deputy Director, Radio Communication Services, City of Houston
	Chaney, John	UASI Tier 1 -- Region 16, HGAC	Sr. Systems Technologist, Harris County
	Pena, Mike	Urban, Capital Area -- Region 12, CAPCOG	Regional Radio System Master Site Supervisor, City of Austin
Evaluation Group: Identify performance measures to track progress and success; describe critical success factors for implementation of the plan.	Adelman, Robert M. -- Chair	UASI Tier 2 -- Region 18, AACOG	Public Safety Comm Manager, Bexar County Sheriff's Office
	McDaniel, B. John -- Co-chair	Rural, Law Enforcement -- Region 9, PBRPC	Sergeant, Midland County Sheriff's Office
	Ervin, Jason	Critical Infrastructure, Water, Power	LCRA
Standard Operating Procedures, Training, and Exercises Group: Assess current SOPs; review for conformance with NIMS; assist with revision; develop a process to manage SOPs statewide; Identify and evaluate existing training programs; develop a statewide training and exercises program; create a process to track required training and certification.	McFarland, Don -- Chair	UASI Tier 2 -- Region 18, AACOG	Homeland Security Director, Alamo Area Council of Governments
	Anderson, Forrest -- Co-chair	Rural -- Region 24, MRGDC	Homeland Security Dir., Middle Rio Grande Development Council
	Bell, Micah	Statewide, Military	Emergency Communications Manager, TX National Guard
	Early, Todd	Statewide	DPS
	Kilgo, Mary	Small Urban -- Region 3, NORTEX	Director of Homeland Security, Nortex Regional Planning Commission
	Rodriguez, Frank Jr.	Statewide, Military	Colonel, Cmdr. 1st Armor Battalion, Texas National Guard
	Vasquez, John	Small Urban, Law Enforcement -- Region 3, NORTEX	Technical Services Mgr., Wichita Falls Police Dept.

WORKING GROUP	NAME	AFFILIATION	TITLE & AGENCY
Funding Group: Identify/develop and promote sustainment funding programs; develop a funding roadmap.	Peters, Joe -- Chair	Statewide	Director, Border Research & Technology Center, Sheriff's Association of Texas
	Jernigan, D'Wayne -- Co-chair	Rural, Law Enforcement -- Border Region	Sheriff, Val Verde County Sheriff's Office
	Haislet, Jeff	Rural, Non-governmental, Medical -- Region 6, ETCOG	Communications Director, East Texas Medical Center
	Keithley, Fred	UASI Tier 2 -- Region 4, NCTCOG	Dir. of Community Service & Communications, NCTCOG

Appendix G:

SCIP Implementation Report to the U.S. Dept. of Homeland Security, Office of Emergency Communications 2008



Texas

Statewide Communication Interoperability Plan (SCIP) Implementation Report

September 2008



Homeland
Security

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State Overview

Overview of the State and its interoperability challenges

Texas is a vast state covering 261,797 square miles that include coastal prairies, southeastern piney woods, a central hill country, and portions of the Great Plains and the southwestern desert. The international border with Mexico forms 1,248 miles of the western and southern border of Texas. Texas has 367 miles of coastline on the Gulf of Mexico which forms part of the eastern Texas border. Texas is a major agricultural state with extensive farming, ranching, animal feeding, and agricultural processing operations. Some 20 million Texans live in urban areas and 3 million reside in rural areas. There are three federally recognized Native American tribes in Texas.

Texas shares state borders with New Mexico, Oklahoma, Arkansas, and Louisiana and has close working relations with those states. The five states compose the Federal Emergency Management Agency's Region VI and participate in regularly scheduled meetings to confer on emergency preparedness, response, and recovery activities and homeland security programs. Border counties in Texas routinely provide mutual aid assistance to neighboring counties in other states and firefighting assistance to neighboring cities in Mexico.

Texas has 34 Critical Infrastructure/Key Resources identified under the Buffer Zone Protection Plan, which have a direct and vital impact to the state and nation. Among them are 23 international ports of entry, 13 major sea ports (the Port of Houston is the seventh largest port in the world, and ranked first in the United States in foreign waterborne tonnage and second in the United States in total tonnage), and 23 commercial and more than 250 general aviation airports. Texas has the nation's largest highway system with more than 300,000 miles of highways. Major international transportation hubs in Texas include the Dallas Fort Worth International Airport, Houston Bush Intercontinental Airport, Dallas Love Field, Union Station in Dallas, Union Pacific Railroad, and the El Paso Natural Gas Pipeline. Texas also has the nation's largest rail system, serving 45 rail companies. Texas has more than 7,000 dams and over 2,500 critical infrastructure facilities. It has the nation's largest oil and gas production facilities, massive refining and petrochemical production complexes, plus more than 300,000 miles of pipeline. Two nuclear power plants are located in Texas as well as the U.S. Department of Energy's Pantex Nuclear Weapons Plant. In addition, 18 major military bases and extensive defense industrial production facilities are located in Texas. Texas is also home to various military, federal, state, and reserve strategic training bases. The state also has a very large banking and insurance industry.

Texas leads the nation in federal disaster declarations and has for some years. Texas has the largest number of tornado impacts of any state and leads the nation in the occurrence of flash flooding and deaths caused by such flooding. Texas is number two in the nation for hurricane and tropical storm impacts and, ironically, is regularly affected by large-scale and persistent drought and related wildfires. Because massive quantities of oil, gas, and hazardous materials are produced, used, stored, and transported throughout Texas, the state experiences large numbers of fires, explosions, and hazardous material accidents at both fixed facilities and during transportation operations.

Because of the lengthy and porous Mexican border, a sizeable coastline, the large number of international air, highway, rail routes and major highways that exist in Texas, and the great number of potential targets in the state, Texas is considered to have a significant risk of trans-national organized crime and a potential terrorist threat, particularly in its major urban areas and areas adjacent to the Texas – Mexico border.

More than 5,000 Texas public safety agencies and organizations provide emergency services to Texas' 23,507,783 residents. Generally, most Texas public safety agencies operate on 20-year-old wideband VHF (Very High Frequency) conventional radio systems. This allows for some interoperability, however, it is not spectrally efficient and there is a need for additional public safety radio channels in

regions adjacent to suburban and urban areas. The metropolitan areas are typically operating proprietary 800 megahertz (MHz) trunking systems or Project 25 (P25) systems. Some of the P25 systems have individual P25 operating switches. Some of the proprietary systems are also 20 years old and a majority of the systems are more than 10 years old. Most regions operating on proprietary radio systems have been equipped with audio gateways and/or console patching capabilities to provide interoperability with adjacent city and county systems.

The Texas Statewide Communications Interoperability Plan (SCIP) prioritized strategic initiatives to achieve interoperability are: ensure operability, provide interoperable solutions, and upgrade and expand regional shared systems. Among the critical success factors to ensure the ongoing effectiveness of its current interoperability initiatives, Texas identified:

- Proposing state legislation to enforce and support the strategic plan;
- Establishing and mandating a technology standard;
- Permanently designating mutual aid infrastructure;
- Leveraging funding and governance agreements to design and provide communications to secure the regional areas and emergency responders supporting the 1,248 miles of international border and 367 miles of Texas coastline; and
- Developing regional standard operating procedures (SOP's) and training and exercise programs, certifications and evaluations.

Vision and Mission

Overview of the interoperable communications vision and mission of the State

The Texas SCIP has a long-term timeframe of **three years (January 2008-December 2010)**. However, due to the critical and urgent need for disaster emergency communications, the Texas SCIP will be reviewed, updated and re-aligned annually. This will provide regions and/or agencies the opportunity to voice and prioritize new concerns. The annual update also provides the mechanism to realign the SCIP to the National Emergency Communications Plan (NECP), provide status updates on SCIP documents and procedures, and identify and list new SCIP initiatives.

Texas' long-term goal is to reach the optimal level of interoperability through a “high degree of leadership, planning, and collaboration among areas with commitment to and investment in sustainability of systems and documentation” as stated in the SAFECOM Interoperability Continuum.

SCIP Vision: By January 2015, provide all public safety and critical infrastructure responders at all levels of government, including local, county, special districts, tribal, state, and federal, with the highest level of real-time direct interoperable P25 standards based voice and future standards based data radio communications utilizing standards-based systems and incorporating the 700 MHz public safety frequencies.

SCIP Mission: Achieve the optimal level of voice and data communications interoperability, including growth, sustainability, and documentation of systems, through a high degree of leadership, planning, and collaboration with commitment to and investment in: 1) Building a governance structure of regional committees working with a statewide interoperability committee; 2) Developing SOP's where the National Incident Management System (NIMS) is integrated into the SOP's; 3) Expanding and/or implementing technology for regional shared systems; 4) Requiring training and exercises that are regular, comprehensive, and regional; and 5) Encouraging daily use of interoperable communications systems throughout the regions.

The SCIP goals and objectives are consistent with the Texas Homeland Security Strategic Plan as well as the Texas Emergency Management Plan, the Texas Department of Public Safety (DPS) Agency Strategic Plan, and the Urban Area Tactical Interoperable Communications Plans (TICP's).

On August 19th at the Texas SCIP annual Strategic Planning Conference, members met to begin SCIP revisions. One major outcome was to restructure the goals to align with the NECP and SAFECOM Continuum. Because funding is a high priority for Texas, the practitioners choose to add a specific goal and initiatives for funding. The “restructured” goals and objectives are:

- ◆ **Goal 1: Governance** - Achieve statewide interoperability by institutionalizing collaborative approaches across the state based upon common priorities and consensus at the regional level.
 - Objective: Ensure a coordinated governance structure, with representation from all regions, all disciplines, state, federal, and non-governmental agencies to plan and implement statewide communications interoperability for all stakeholders.
 - Key Strategy: Education and planning.
 - Milestone: Governance charter adopted February 11, 2008.
- ◆ **Goal 2: Standard Operating Procedures** - Enhance use of interoperable communications systems with integrated, NIMS compliant, regional standard operating procedures (SOP's).
 - Objective: Improve coordination of first responder activities with integrated SOP's that are included in training programs and exercised routinely.
 - Key Strategy: Facilitate regional integrated SOP's.
 - Milestone: Regional integrated SOP template developed and adopted August 19, 2008.
- ◆ **Goal 3: Technology** - Build a statewide “system-of-systems” network consisting of regional standards-based shared voice and data communications systems. Voice systems will adhere to the APCO Project 25 (P25) suite of standards. Data systems will adhere to a suite of standards still to be defined.
 - Objective: Ensure operability while leveraging investments in existing communications infrastructure and systems when designing and implementing regional interoperability.
 - Key Strategy: Planning and project management.
 - Milestone: Adopted P25 standard for interoperable voice communications; Regional Interoperable Communications Plan (RICP) template developed and adopted August 19, 2008.
- ◆ **Goal 4: Training & Exercises** - Ensure integrated local and regional training & exercise opportunities are available to all emergency responders.
 - Objective: Ensure first responders at all levels are trained and routinely exercise communications equipment, procedures and coordination.
 - Key Strategy: Multiple training and exercise opportunities.
 - Milestone: Pilot program planning underway for regional online interoperability training.
- ◆ **Goal 5: Usage** - Accelerate use of regional P25 shared voice communications systems for daily operations as well as all-hazards emergency communications.
 - Objective: Expand and/or transition voice communications systems to P25 regional shared (fixed and mobile) systems.
 - Key Strategies: Planning and project management.
 - Milestone: Communication Asset Survey & Mapping (CASM) database developed and being maintained.

- ◆ **Goal 6: Funding** – Secure consistent funding for ongoing development, capital replacement, and operations and maintenance costs.
 - Objective: Develop a funding plan that will generate the funding resources necessary to acquire and sustain statewide voice and data communications interoperability.
 - Key Strategies: Planning, support and legislative action.
 - Milestone: Developed and adopted the SCIP funding plan.

Urban Areas

Overview of the Urban Areas in the State and to what extent they are mentioned in the SCIP

Texas now has five Urban Areas Security Initiatives (UASI)-designated regions. Houston is Tier 1; El Paso, San Antonio, Dallas/Fort Worth/Arlington, and Austin are Tier 2. The SCIP lists each of the urban areas individually, and provides details on the Tactical Interoperable Communications Plan (TICP) scorecard recommendations by category, and the progress of implementing said recommendations. The state's urban areas provided leadership along with their invaluable experience gained by the development of their TICP's, exercises and scorecard recommendations in the development of the SCIP.

The SCIP indicates that interoperable communications has been incorporated into its regimen of regional UASI exercises, and describes the interoperable communications strengths and weaknesses of each Urban Area in significant detail. It describes efforts underway to coordinate and integrate SOP's and training programs throughout the urban areas as well as statewide.

All Urban Areas will collaborate with their region in the development of the Regional Interoperable Communications Plan (RICP). This plan will describe the migration strategy to achieve regional P25 standards based voice interoperability by 2015. The plan will include initiatives, cost estimates, milestones and a timeline.

Governance

Overview of the governance structure and practitioner-driven approaches

The Governor appointed the Texas Radio Coalition (TxRC) as the governing body for the Texas SCIP. The TxRC is represented on the Governor's First Responder Advisory Council and thus designated by state law to advise the Governor on relevant homeland security issues. The TxRC comprises various agencies and associations that represent the local first responder perspective, a critical element that allows the TxRC to serve as a voice for that community. The Texas SCIP governance charter is based on the SAFECOM/Department of Homeland Security (DHS) template. The governance charter was adopted February 11, 2008.

The SCIP established governance structure is made up of the three bodies of the TxRC that includes a variety of State and local stakeholders and organizations. These groups are:

- Executive Committee: An oversight body composed of higher-level administrators who will be vested with final decision-making authority by the Governor of Texas. Members of this group include Federal, State, regional, and local representatives.
- Steering Committee: This advisory group has regular monthly planning and review meetings, plus Web-based conferences when needed. The group consists of inter-disciplinary, inter-

jurisdictional representatives from across the State who have a broad knowledge of wireless communications and hold a formal or informal leadership position within their agency. Members of this group includes Federal, State, local, and tribal representatives.

- **Working Groups:** Temporary, narrowly chartered Working Groups were formed for specific tasks, such as conducting research and collecting data.

Additionally, jurisdictions in each of the regions have established various Memoranda of Understanding (MOU)/Interlocal Agreements for mutual aid/emergency services during disaster situations which include communications. State agencies, tribal governments, organizations, ports, transits, and other agencies have also signed communications agreements. The Texas Interoperability Channel Plan established a Channel Plan MOU specifically for mutual aid communications.

The TxRC worked under the direction of the Texas Homeland Security Director, Steve McCraw, to develop the SCIP. Jim Harrison, Office of the Governor, has been designated as the interim Texas Interoperability Coordinator while Texas seeks the right person to fill the position on a permanent basis.

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Governance Initiatives

The following table outlines the strategic governance initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Hire full-time Interoperability Coordinator and support staff	Dedicated leadership	Executive & Governance Committees; Governor's Office	June 2009	
Finalize the Texas SCIP governance charter based on the SAFECOM/DHS template. Tasks: Research, evaluate, draft, confirm.	No formal governance agreement	Governance Working Group	March 2008	
Conduct Focus Group Sessions and Annual Strategic Planning Session.	Forum to voice operational requirements and current concerns	TxRC	Annually	
Promote State legislation that enforces timely and cost-efficient execution of strategic plan initiatives.	Lack of interoperability and funding	Executive & Funding WG's	Begin meeting with legislators by May 2008. Adopt legislation within two years.	
Assist regions with governance development for regional shared interoperable communications systems. Tasks: 1) Request ICTAP assistance.	Planning and collaboration	Governance WG	Template – 2009 Plan - 2010	
Don't Mess With Texas! Develop project accountability policies and procedures to ensure	Lack of funding; robust	Technology Advisors &	Aug 2008 and on-going	

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
successful implementation and that "taxpayer's get maximum value for their dollars." Tasks: 1) develop and require project management and cost analysis reports; 2) provide project management training; 3) update vendors on accountability measures.	accountability; project management	SAA		

Standard Operating Procedures

Overview of the shared interoperable communications-focused SOPs

Most SOP's are developed at the local or regional levels. In 2005, all 24 state planning regions were directed to assess regional communications interoperability and submit a regional interoperability plan for approval by the Texas Office of Homeland Security. Most local government communications operations are guided by a combination of emergency plans, the communications annexes to those plans, and local and regional communications interoperability operating procedures. Additionally, some UASI areas and densely populated cities and counties have structured SOP's for communications interoperability. Most State agencies have documented standard procedures for emergency communications operations.

Governor Perry signed Executive Order RP40¹ on February 23, 2005, requiring NIMS as the state standard. The State Administrative Agency (SAA) requires agencies to certify NIMS compliance to be eligible for federal grant funding.

The TxRC SOP and Governance Working Groups developed a regional template for integrated state and local agency SOPs for interoperable communications which each region and state agency can adapt to specific regional requirements and capabilities. These templates were approved on August 19, 2008. Agencies providing input into the template development include but are not be limited to: city and county emergency management coordinators; local and tribal law enforcement; fire departments; volunteer fire departments; emergency medical services organizations; UASI representatives; trauma centers; Texas DPS; Texas Department of Transportation (DOT); and Texas Military Forces. Each Council of Governments (COG) will identify the state and local agencies within the region to adapt the SOP to regional requirements. The SOP will follow the guidelines established by NIMS for incident command. All state and local public safety agencies and all agencies responding to incidents within a region will be expected to comply with the regional SOP or provide other applicable documentation by December 2008. Furthermore, as regional SOP's are developed, practitioners will have access to them via a web site.

SOP's will be revised when major changes are needed due to enhancements or other changes in the communications environment. SOP's will be made available to appropriate individuals for training purposes and to influence interoperability efforts. Each lead agency will provide the appropriate COG, the emergency management coordinator of each county within the region, the TxRC, and Emergency Management Council with electronic copies of the interoperable communications SOP for review on an annual basis. Each COG and/or county emergency management coordinator will provide all regional public safety agencies and personnel copies of the SOP and provide ongoing access to the SOP's for training purposes.

¹ Executive Order RP40, (<http://governor.state.tx.us/news/executive-order/3690/>).

Texas is a subscriber to the Emergency Management Assistance Compact (EMAC) which is a resource for State to State supplies of personnel and equipment. EMAC is a national governor's interstate mutual aid compact that facilitates the sharing of resources, personnel, and equipment, across state lines during times of disasters and emergencies. EMAC provides administrative oversight and support staff and formal business protocols, solves problems upfront with provisions in the compact including continuity of operations with SOP's, and integrates into existing command and control structures.

Texas invited the contiguous states to participate in the second annual Statewide Strategic Planning Conference to review and update the SCIP. This year two adjacent states were actively involved in the planning session. For regional-local and cross-border mutual aid events, interoperability with adjacent states, like adjacent counties and/or regions, will be accomplished by executing the TSIEC MOU and using the licensed Texas Interoperability Channels.

The U. S. State Department is currently finalizing a communications interoperability agreement with Mexico, which will include the United States/Mexico border from Brownsville, Texas, to San Diego, California. The plan includes microwave links to the DHS Customs and Border Patrol's sector headquarters in the affected areas. Agencies operating along the border will have access to interoperable communications via these microwave linkages when completed.

Lastly, in most cases, the Urban Areas with major transit and bus service companies have provided these organizations with interoperable equipment or have established interfaces with the organizations' communications systems.

SOP Initiatives

The following table outlines the SOP strategic initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Each region to develop a regional SOP for regional response to emergencies. Tasks: 1) Draft a regional template for integrated State and local agency SOPs for interoperable communications using the SAFECOM guide. 2) Identify the State and local agencies within the region to adapt SOP template to regional requirements. 2) Require Regional-Integrated SOP (RI-SOP) by 12/2008. 3) Review and post RI-SOPs by 6/2009.	Clear coordination and responsibility procedures	SOP & Governance Working Groups; All regions	template – 09/ 2008 RI-SOP – 12/2008 Post – 6/2009	
Evaluate and coordinate Mutual Aid Interoperability Channels in the 800 MHz and VHF frequency bands. Fund infrastructure improvements for implementation of all recognized/defined mutual aid channels (800 MHz, 700 MHz, VHF, and UHF).	Mutual Aid channels are overloaded in metro and urban areas.	Governance and SOP/Training & Exercise WG's	December 2010	
Promote a communications interoperability plan/agreement with Mexico.	Unable to communicate when providing/receiving mutual aid	Governance WG	January 2009	

Technology

Overview of the technology approaches, current capabilities, and planned systems

Texas communications systems vary greatly and many areas are impacted by limited operability of public safety radio communications systems. Much of rural Texas has few land telephone lines and less cellular telephone service because of sparsely populated areas, as well as barren regions and piney forest wilderness areas. In addition, Texas has the longest international border and the most traffic across the border. This is a problem area for communications because a significant portion of the international border between El Paso and Brownsville lacks operability and interoperability. This area is very rural with no terrestrial radio communications or cellular telephone communications of any kind. Parts of the Texas coastline from the Louisiana border to Brownsville have similar operability problems, e.g. little to no radio coverage in some areas, aged infrastructure, proprietary systems, and lack of capacity to add users and lack of frequencies to add channels. These circumstances often prevent responding local, state, and federal agencies from maintaining internal communications during an incident and response. Because interoperability is essential for disaster emergency communications and the possibilities of catastrophic events along the Texas coastline and Mexico border are elevated, these areas remain a major concern for Texas.

Most Texas public safety agencies, regardless of the geography, operate on conventional wideband VHF systems. This allows for some interoperability in coverage areas; however, it is not spectrally efficient and there is a need for additional public safety radio channels in regions adjacent to suburban and urban areas. Many of these systems operate on aged unreliable infrastructure, much of which is more than 20 years old, providing only partial operability and limited if any interoperability. In addition, some areas such as Houston and Dallas/Fort Worth/Arlington use several different and aged radio systems within the cities for emergency communications.

The focus statewide was to achieve interoperability by providing gateways and patches where needed. We found that this process can be time consuming and somewhat confusing when seconds count and lives are at stake. The new goal is to provide seamless interoperability by building out standards-based shared systems to form a system of standards-based systems. This will be accomplished by leveraging existing infrastructure and systems, where appropriate, and with standards-based communications system purchases. Texas's approach is to support large multi-agency regional systems and link them to provide expanded statewide coverage as needed, on demand, and as authorized. There are currently several large regional public safety systems in the state that are P25 compliant or are migrating to P25 TIA/EIA 102 Standards-based systems.

The metropolitan areas typically operate on proprietary 800 MHz trunking systems with few P25 systems. Some of the proprietary systems in the state are 20± years old and a majority of the systems are more than 10 years old. System managers are unable to expand the capacity and coverage of these systems because of a lack of available radio channels. Most regions operating on proprietary radio systems are equipped with audio gateways or console patching solutions to provide interoperability with adjacent cities and counties. Some of these regions have mobile communications equipment that supports various interoperability components. Many of the older systems are experiencing problems finding adequate sources and supplies of replacement parts to keep the systems operable.

Local & Regional Data Capabilities: Many private radio systems and most regional radio systems currently have some data capability. This ranges from integrated voice and data on a voice radio system to mobile data operating on 800 and 900 MHz frequencies and mesh broadband systems. Applications include text messaging, mapping and database searches, and access to TLETS (Texas Law Enforcement Telecommunications System) and NCIC (National Crime Information Center).

The following tables list the major systems in Texas and include those used for interoperable communications, large regional systems specifically designed to provide interoperability solutions, and large wireless data networks.

State System Name	Description	Status
Texas Department of Public Safety	<p>The Texas Department of Public Safety (DPS) operates a state-wide digital VHF Project 25 compliant conventional radio system through 32 Communications Facilities strategically located throughout the State across the 254 counties. The Department has begun to migrate toward a hybrid trunked radio system utilizing 700 MHz where feasible. The first 700 MHz trunked radio intelli-repeater (IR) site was placed at the State Capitol and integrated with the City of Austin's Regional Radio System. DPS has also integrated five communications facilities into the Harris County Regional Radio System. These interfaces provide immediate interoperability for all users utilizing these systems. The Department will leverage existing radio infrastructure throughout the State by partnering with the regional radio systems and State Agencies to build the state-wide system of systems.</p> <p>The Department is working closely with the Texas Border Communications Project representatives to provide the equipment to connect the border radio systems together.</p> <p>The Department is the primary public safety first responder agency during catastrophic incidents. DPS is partnering with the regional planning areas in an effort to improve disaster emergency communications specifically along the Texas coastline. Through the State strategic reserve, DPS is able to provide interoperability equipment to establish immediate interoperability for disaster emergency communications dependent upon the size and scale of the events.</p> <p>Funding has recently been authorized for laptops/data terminals in all DPS Highway Patrol units. This equipment will operate on commercial networks to provide officers with text messaging capability for coordination of operations across multiple counties. It will also provide direct mobile access to TLETS. TLETS provides access to a variety of local, state, and federal criminal data base systems, e.g. NCIC.</p>	Existing and planned improvements
Harris County Regional Radio System	<p>A regional system with a coverage area larger than most states; Harris County has 11 counties on the system, 35,000 subscriber units, and about 550 agencies on the system; the system is operational in both the 800MHz and 700MHz bands using P25 compliant trunk technologies.</p> <p>Regional subscribers to the system include: Federal, State and Local Public safety and Law Enforcement Agencies, Fire Departments, Public Works Departments, Cities, Counties, public schools and University systems, in addition to the Texas Medical Center and several private air ambulance services.</p>	Existing and planned expansion
East Texas Medical Center (ETMC) System	<p>Covers 15 counties, providing primary communications for 250 local and volunteer, non-governmental public safety agencies and 7,000 users. Operates an 800 MHz analog trunked system through rural counties in east Texas. System is no longer supported by the vendor and must be transitioned to P25. The new ETMC sites will tie into the Harris County/H-GAC Regional P25 System extending that coverage from Galveston to Dallas. The joining of the systems will create a P25 standards-based system that uses 700/800 MHz trunking technologies covering 25 counties.</p>	Existing and planned improvements
Austin-Travis County Regional Radio System	<p>The Austin-Travis County Regional Radio System shares its system controller with the newly-upgraded Williamson County system, a trunked VHF system serving the Middle Rio Grande Valley, and a 700 MHz system built by Texas DPS in Austin. The combined systems serve more than 100 agencies and 15,000 users. Future projects will connect agency-owned systems in counties adjacent to Austin-Travis County to the Austin-Travis switch, with the goal of creating a shared standards-based system that covers the entire 10 county planning region. Austin-Travis are currently pursuing integrated voice and data to provide short text messaging and global positioning information over the voice radio</p>	Existing and Planned Improvements and expansions

State System Name	Description	Status
	system. They're also working with Harris County and LCRA to provide connectivity and interoperability from Houston, Galveston, and Corpus Christi back to Austin.	
City of Houston	<p>In the process of acquiring a new interoperable voice P25, 700 MHz trunked system that will be linked to regional radio systems across Texas; @ 20,000 subscriber units expected. This system will provide in-building public safety radio coverage for multiple agencies in and around the City of Houston. The system will have between 45-50 sites and cost between \$100 - \$150 million.</p> <p>Current data capability includes: WEB EOC with up to 1000 users dependent upon event; Houston CAD handles 5000+ calls per day; Fire RMS with 1000+ users; OLO (On-Line Offense) Houston PD RMS with approximately 5000 users; and voice logger that records 10,000+ calls.</p>	Planned (in the final stages of contract negotiations)
City of Dallas, Dallas/Fort Worth/ Arlington Urban Area	<p>Dallas proposed upgrade of an analog trunked 800 MHz communications system to include 700 MHz will provide interoperability to the Dallas public safety agencies as well as public works agencies. This system will serve a population of 1.25 million persons and provide communications for approximately 3,500 first responders and about 4,000 support and public works personnel. Dallas has set up some wireless video surveillance in a few areas; this may be expanded with available funding.</p> <p>The goal for the UASI area is to have seamless interoperability among all Metroplex systems. There are 15 to 20 proprietary 800 MHz trunked systems in the area. A multi-phased approach is being considered, due to the high cost of implementing new systems in the UASI area. The project currently being evaluated is the installation of a 700 MHz P25 system overlay of the Region (3-6 channels) for agencies to roam outside their jurisdictional boundaries</p>	Existing and Planned Improvements
El Paso	In the process of upgrading to a standards-based interoperable communications system. This will provide interoperability and coverage for the UASI area (City of El Paso and County of El Paso). This portion of the plan includes interoperable communications in both 800 MHz and VHF frequencies. Officials are planning to build out interoperable communications coverage in Region 8's six counties, and linking the El Paso system to the Texas Border Communications project.	Existing and Planned Improvements
San Antonio Area	<p>Intend to enhance the existing 800 MHz coverage area by consolidating several non-simulcast sites into new simulcast sites. In addition, plan to improve system interoperability by creating 700 MHz interoperability overlays and establish switch-to-switch connections with several public safety and critical infrastructure agencies (LCRA, VIA Transit, Corpus Christi / Nueces County, AEP, etc.) locally and regionally. These overlays and connections will leverage existing 800 MHz and 900 MHz coverage areas, existing infrastructure, and resources throughout multiple regions but especially along major coastal evacuation routes, logistical support corridors, and between regional medical centers.</p> <p>Currently implementing a regional emergency communications information sharing and mobile data system providing record management system (RMS), and Field Reporting Systems. All public safety answering points (PSAP's) within Bexar, Comal, and Guadalupe counties will soon be connected with dedicated fiber.</p>	Existing and Planned Improvements
City of Bryan	Mixed mode, 800 MHz trunked system. Partnered with the City of College Station, Brazos County, Texas A & M University, the City of Brenham, and Washington County to form the Brazos Valley Wide Area Communications System (WACS) which is seeking funding for a P25, 700/800 MHz, shared system that will encompass the entire area, and be expandable into the remaining five counties of the Brazos Valley COG. The system will be linked to the adjoining regional shared systems of the Harris County Regional Radio System and the Austin-Travis County/Williamson County Regional Radio System.	Existing and Planned Improvements
Lower Colorado River Authority	900 MHz trunked system covering 37,000 square miles and 54 counties. Implementing 700 MHz overlay to existing LCRA system. This equipment will allow for a seamless integration into existing regional systems, as well as the agencies' existing conventional	Existing and planned improvements

State System Name	Description	Status
	systems for interoperability. • 700 MHz channel equipment installation at 46 existing sites to provide approximately 37,000 square miles of RF coverage that consist of all or part of 54 counties in central Texas.	
Middle Rio Grande Development Council Regional Radio System	Multi-phase VHF P25 trunking system supporting the multi-agency and multi-discipline jurisdictions along the Texas-Mexico border area which include 9 counties, 51 membership agencies, the Kickapoo Traditional Tribe of Texas, plus federal and state users.	Existing and planned improvements

Technology Initiatives

The following table outlines the short-term technology strategic initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Provide operability throughout the State by implementing solutions to close gaps found through user surveys and CASM data analysis. Tasks: 1) Identify gaps; 2) Implement solutions.	No operability in parts of Texas	Technology & Funding Working Groups	Sept 2010 Jan 2013	
Assist regions in the development of implementation plans to migrate radio assets to a standards-based, shared System of Systems. Task: 1) Establish and mandate the technology standard for the Texas SCIP. 2) Form regional working groups to leverage existing systems and infrastructure when building new or upgrading and expanding systems. 3) Identify solutions that incorporate existing technologies and allows for new technologies and functionality in the future. 4) Prioritize system connections for both statewide and regions, implementing the connections that respond to the greatest threat first.	Regional interoperability, Aged equipment	TxRC, Technology Working Group, All Regions, State Agencies	Voice – 2010; Data - 2011	
Develop a detailed plan for operability and interoperable communications along the Texas coast from Louisiana to Mexico. Tasks: 1) Monitor, participate, engage with DHS OEC and FEMA as they further develop the Gulf Coast Communications Interoperability System concept to support disaster communications from Florida to Texas; 2) Build on existing regional systems and incorporate new technologies; 3) build-in resilience and add redundancy throughout regional systems; 4) provide daily communications for all State, local, federal and non-governmental first responders that routinely operate within each region; 5) include interstate interoperable communications with Louisiana and Mexico; 6) include disaster emergency communications surge requirements; 7) provide coverage, capacity and console connectivity along the entire coast	Coverage, operability, Aged equipment, Interoperability, Disaster communications	TxRC; Regions 15, 16, 17, 20 & 21; State Agencies	Jan. 2009	

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Develop a detailed plan for operability and interoperable communications along the Texas/Mexico Border from El Paso to Brownsville. Tasks: 1) Monitor, participate, engage with DHS OEC and CBP to further develop the Border Communications capabilities; 2) Plan to include and build on existing regional systems and incorporate new technologies; 3) to include interstate interoperable communications with New Mexico; 4) to provide daily communications for all State, local, federal and non-governmental first responders that routinely operate within each region; 5) to include Disaster Emergency Communications surge requirements; 6) to provide coverage, capacity and console connectivity along the entire coast	Coverage, operability, Aged equipment, Interoperability, Disaster communications	TxRC; Border Radio Coalition; BSOC; State Agencies	Jan. 2009	
Develop a detailed process for frequency coordination, radio interference, and conflict mediation.	Insufficient channel availability; Interference	Texas Radio Coalition, DPS	June 2009	

Training and Exercises

Overview of the diversity, frequency, and inter-agency coordination of training and exercises

Training

Texas has incorporated interoperable communications training into all of the Governor's Division of Emergency Management state sponsored training programs. Texas plans to implement regional training programs that include:

- Providing stand-alone single discipline and multi-discipline interoperable communications training courses through existing State and regional training academies and organizations.
- Providing a basic multi-disciplinary interoperable communications course online.

The State has a number of specialized communications teams who all have training curriculum, requirements, and annual required training hours.

In addition, standard communications personnel training curricula will be modified to include interoperability training modules, so that new dispatchers are schooled in these fundamental procedures prior to assuming their duties on live systems. The State's SOP's will be updated to reflect the training for primary and back-up communication unit leaders. First responders likewise will be provided detailed instruction on radio interoperability as well as regular hands-on "refresh" training. Lastly, as the communications assessment information becomes available via the CASM tool, programs will be developed to provide users with "how-to" guides for specific radio equipment. Along with equipment investments, vendors will be encouraged to provide electronic copies of detailed training materials and programs for mass distribution and local customization.

Clear-cut processes will be implemented to test and exercise SOP's on a routine and cost-efficient basis.

Exercises

Currently, the Governor's Division of Emergency Management (GDEM) is conducting regional exercises to test regional plans and interoperable communications equipment and identify needed improvements in plans, procedures, equipment, and training. These exercises include responders from federal, state, local, and tribal agencies.

All GDEM training and exercise programs are NIMS compliant. On February 23, 2005, Governor Rick Perry issued Executive Order RP 40 adopting NIMS as the statewide system to be used for emergency prevention, preparedness, response, recovery, and mitigation activities, as well as in support of all actions taken to assist local entities.

Training and Exercises Initiatives

The following table outlines the training and exercises strategic initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Enhance training and exercise programs. Tasks: 1) Have individuals trained and certified as COM -L trainers; 2) Identify regional Communications Unit Leaders and provide necessary training; 3) Develop templates for SOP's and drills, that can be incorporated into, and augment, the State's existing training and exercise programs.	Lack of local training and education on current interoperability capabilities and structure	TxRC & GDEM	March 2010	
Provide online training programs with testing and certifications. Tasks: 1) Develop a regional pilot program to be tested and evaluated; 2) Expand the pilot to multiple regions; 3) Expand the pilot statewide.	multiple training venues	TxRC, CAPCOG, SOP & Training and Exercise WG's	1 st Pilot - 2010	

Usage

Overview of the testing of equipment and promotion of interoperability solutions

Regular usage of interoperable communications procedures and equipment will be required and made uncomplicated by providing templates for simple drills that exercise capabilities (e.g., console patches, gateways). Communications personnel will be expected to voice-test calling channels with subscribers in the field regularly. Remote enabling/disabling of mutual aid repeaters as well as simple console patches (e.g., 8TAC-91 patched to a law enforcement sector channel) likewise will be practiced regularly.

As an example of usage, the Harris County Regional Radio System has *The Book of Knowledge*, which includes the SOP for emergency communications. Harris County, Houston and the Dallas/Fort Worth urban areas participated with DOJ in the "25 Cities Federal Interoperability Channels Project" where the SOP requires participating cities/counties to test interoperability with the VHF Federal agency system weekly, along with interoperability with other agencies and systems.

Usage Initiatives

The following table outlines the usage strategic initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Develop and keep current an interactive statewide communications assessment database. Task: 1) Enter 80 percent of statewide communications assets into the CASM tool to validate agency radio communications capabilities and survey results. 2) Jurisdictions must routinely update CASM information to show commitment to adhere to the SCIP and to receive grant funding.	Capabilities assessment	Capabilities Working Group; All Regions; State Agencies	December 2008	
Implement programs to require routine use of interoperability equipment. Tasks: 1) Voice-test calling channels with subscribers in the field. 2) Provide templates for regular usage of interoperable communications procedures and equipment that exercise capabilities (e.g., console patches, gateways).	Knowledge of equipment	SOP & Training & Exercise WG	Regularly	
90% of UASI areas provide response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.	Interoperability	TxRC, UASI's, state agencies	2010	
75% of non-UASI jurisdictions provide response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.	Interoperability	TxRC, All regions and state agencies	2011	
75% of all jurisdictions provide response-level emergency communications within three hours in the event of a significant incident.	Interoperability	TxRC, All regions and state agencies	2013	

Funding Initiatives

The following table outlines the strategic funding initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Operation Texas Talks: Secure consistent funding for ongoing development, capital replacement, and maintenance costs. Tasks: 1) Develop funding plan; 2) Identify new and existing sources of funding; 3) Promote legislative action for public safety communications funding.	No dedicated funding mechanism for communications and interoperability efforts	Executive Committee & Funding WG; Regions	1) August 2008; 2) on-going; 3) March 2008 Meet with State level stakeholders monthly	
Prioritize Public Safety Interoperable Communications (PSIC), DHS and State funds for immediate and critical interoperability needs. Tasks: 1) Distribute grants, as available, to build-out	Lack of funding	Working Groups; Regions	On-going. 1) Provided SAA input on PSIC priorities by October 2007; 2	

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
operability and statewide interoperability. 2) Identify on-going operations, maintenance and back-haul expenses to support statewide system; 3) Develop a funding program to support on-going interoperability expenses.			& 3) 2012.	

Appendix H:

SCIP Implementation Report to the U.S. Dept. of Homeland Security, Office of Emergency Communications 2009



Texas

Statewide Communication Interoperability Plan (SCIP)
Implementation Report
July 2009



**Homeland
Security**

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Successes and Challenges

State evaluation of successes and challenges

OEC is required to report to Congress on progress on SCIP implementation and would like to highlight success stories and remaining challenges. In the table below, please highlight three to five SCIP Implementation success stories since your SCIP was approved in April 2008. In addition, please identify two to three challenges. Use as much space as needed to identify and describe the successes and challenges.

Please note that the information you submit on your successes and challenges will be made publicly available, unless this information is sensitive. If you wish to report on progress and/or challenges, but such information might be sensitive, please advise us so that we can consult with you on how it could be redacted from the public. Be advised that only the information contained in this table will be subject to being made available to the public.

Successes (3-5): Identify the success and describe why it is significant or important to overall statewide interoperability efforts.

The following Texas Radio Coalition-generated projects represent advances and achievements in statewide communications interoperability and the protection of life and property.

1. Texas Border Communications Coalition: The 1,240-mile Texas-Mexico border presents numerous homeland security concerns, many of which center on the lack of basic radio operability in parts of the region as well as poor interoperable communications among local, state, and federal law enforcement agencies. The Texas Radio Coalition (TxRC) organized regional governments from El Paso to Brownsville as the Texas Border Communications Coalition, which is now collaborating with the Texas Department of Public Safety (TxDPS) to develop short-term solutions to immediate communications problems as well as a long-term plan for interoperability. Their first major success was a 2007 Public Safety Interoperable Communications award of more than \$9 million.

2. Texas Coastal Communications Coalition: The TxRC called on TxDPS and the Federal Emergency Management Agency (FEMA) to help Texas coastal regions develop a plan to harden existing communications assets and to be ready to deploy additional assets for communications interoperability among first responders in an emergency such as a hurricane. Governor Perry established two "Logistics Staging Areas" to coordinate and track evacuation and response efforts. Each year, the 367-mile Texas coast is the target of tropical storms that often become major hurricanes, sometimes striking opposite ends of the coastline almost simultaneously. A quick and coordinated response by trained and properly equipped responders is vital to the preservation of life and property. The initial efforts of the TxRC greatly paid off during the response to Hurricane Ike, leading to the creation of the Texas Coastal Communications Coalition.

3. Disaster Communications Planning and Coordination:

a. Texas has the unfortunate distinction of leading the nation in Presidential Declared Disasters. Statewide, there is a critical need for mobile communications assets and trained first responders ready to deploy to support local communities in a disaster. In 2006, with \$5 million in Public Safety Interoperable Communications grant funding, TxDPS and Texas Military Forces

together purchased a cache of communications equipment known as the Strategic Technology Reserve, which deploys with trained technicians to oversee its operation. In collaboration with the TxRC, TxDPS and the Governor's Division of Emergency Management are updating the Disaster Communications Annex to the State Emergency Plan. With this plan in place, Strategic Technology Reserve equipment and support personnel, along with regional mobile command and communications vehicles, will be able to respond within hours to establish interoperable communications in any part of Texas hit by a disaster.

b. Communications Coordination Group (CCG): Established by the Texas Legislature in 2009, the CCG facilitates public and private collaboration to plan and deliver communications support during large-scale, multi-agency disaster responses. Its goal is to optimize the use and effectiveness of government and commercial communications systems and resources. The CCG is well-trained and stands ready to mobilize and coordinate resources wherever in Texas they are needed.

4. Regional Interoperable Communications Plan (RICP): RICP templates have been developed to assist regions in the planning, creation, and approval of governance structures, common standard operating procedures, and transitioning communication systems to P25 technology. Stakeholders provided input on the templates at statewide workshops facilitated by FEMA's Interoperable Communications Technical Assistance Program. Regions are currently developing their RICP's and will submit them to the State by December 15, 2009.

5. Best Practices in Project Management and Accountability: The TxRC is actively involved in helping its members improve contracting practices, ensure accountability, and reduce costs wherever possible in planning, developing, and funding improved emergency communications systems. By bringing technology advisors and subject matter experts into the planning process and creating public-private partnerships where feasible, Texas agencies saved more than a half-million dollars in 2008 alone.

Challenges (2-3): Identify the challenge and describe how it has/will make SCIP implementation difficult.

1. Need for Sustainment Funding: Led by the TxRC, emergency responders throughout Texas continue to promote legislative support for annual funding to build and maintain statewide interoperable communications systems. While such funding has yet to materialize, the Texas Legislature will next convene in 2011, when new sustainment legislation will be introduced.

2. Building New and Replacement Communications Towers: The useful life of much of the existing radio tower infrastructure in Texas is of serious concern. Both communications operability and interoperability are compromised throughout Texas due to aged and decomposing towers with unreliable antenna systems. Time necessary to acquire land, navigate the lengthy federal approval process, and finally construct towers may often exceed the performance periods of most grant programs.

3. Developing a Texas Data Interoperability Plan: Development of a statewide data interoperability plan depends upon both the availability of dedicated spectrum and development and ratification of national data interoperability standards.

4. Narrowbanding below 512 MHz: Many Texas jurisdictions and regions, as well as state agencies, will need assistance in meeting FCC-mandated “narrowbanding” requirements by 2013.

State Overview

Overview of the State and its interoperability challenges

Texas is a vast state covering 261,797 square miles that include coastal prairies, southeastern piney woods, a central hill country, and portions of the Great Plains and the southwestern desert. The international border with Mexico forms 1,248 miles of the western and southern border of Texas. The southeast border of Texas is formed by the 367 miles of coastline on the Gulf of Mexico. Texas is a major agricultural state and leads the nation in production of cattle, sheep and goat products, and cotton and cereal crop production, and provides a major portion of the nation's produce. Some 20 million Texans live in urban areas and 3 million reside in rural areas. There are three federally recognized Native American tribes in Texas.

Texas shares state borders with New Mexico, Oklahoma, Arkansas, and Louisiana and has close working relations with those states. The five states compose the Federal Emergency Management Agency's Region VI and participate in regularly scheduled meetings to confer on emergency preparedness, response, and recovery activities and homeland security programs. Border counties in Texas routinely provide mutual aid assistance to neighboring counties in other states and firefighting assistance to neighboring cities in Mexico.

Texas has 34 Critical Infrastructure/Key Resources identified under the Buffer Zone Protection Plan, which have a direct and vital impact to the state and nation. Among them are 23 international ports of entry, 13 major sea ports (the Port of Houston is the seventh largest port in the world, and ranked first in the United States in foreign waterborne tonnage and second in the United States in total tonnage). There are more than 270 commercial and general aviation airports in Texas. Major international transportation hubs in Texas include the Dallas Fort Worth International Airport, Houston Bush Intercontinental Airport, Dallas Love Field, and Union Station in Dallas. Texas has the nation's largest highway system with more than 300,000 miles of highways. Texas also has the nation's largest rail system, serving 45 rail companies. It has the nation's largest oil and gas production facilities, massive refining and petrochemical production complexes, plus more than 300,000 miles of pipeline. Two nuclear power plants are located in Texas as well as the U.S. Department of Energy's Pantex Nuclear Weapons Plant. In addition, 18 major military bases and extensive defense industrial production facilities are located in Texas. The state also has a very large banking and insurance industry.

Texas leads the nation in federal disaster declarations and has for some years. Texas has the largest number of tornado impacts of any state and leads the nation in the occurrence of flash flooding and deaths caused by such flooding. Texas is number two in the nation for hurricane and tropical storm impacts and, ironically, is regularly affected by large-scale and persistent drought and related wildfires. Because massive quantities of oil, gas, and hazardous materials are produced, used, stored, and transported throughout Texas, the state experiences large numbers of fires, explosions, and hazardous material accidents at both fixed facilities and during transportation operations.

Due to the lengthy and porous Mexican border, a sizeable coastline, the large number of international air, highway, rail routes and major highways that exist in Texas, and the great number of potential targets in the state, Texas is considered to have a significant risk of trans-national organized crime and a potential terrorist threat, particularly in its major urban areas and areas adjacent to the Texas – Mexico border.

More than 5,000 Texas public safety agencies and organizations provide emergency services to Texas' 23,507,783 residents. Public safety communications operability and interoperability are being compromised throughout the State due to aged and decomposing towers with unreliable antenna systems. The useful life of much of the existing radio tower infrastructure in Texas is a real concern.

Many Texas state and local public safety agencies still operate on 10 to 20 year-old wideband radio systems. Another significant concern for Texas is assisting public safety agencies in transitioning to narrowband communications by 2013.

Our major gaps in statewide interoperability are: 1) Towers that are aging and decomposing throughout the state; 2) Communications systems that must be narrowbanded by 2013; 3) Gulf Coast and Texas-Mexico border areas that lack reliable communications; 4) Limited operable and interoperable communications on primary evacuation routes; 5) Insufficient training/exercises to meet specific needs.

The Texas Statewide Communications Interoperability Plan (SCIP) prioritized strategic initiatives to achieve interoperability are: ensure operability, provide interoperable solutions, and upgrade and expand regional shared systems. The critical success factors are:

- Governance - to "promote state legislation that enforces timely and cost-efficient execution of strategic plan initiatives which support state-wide communications and interoperability."
- Funding - to "identify new and existing sources of funding for interoperable communications equipment, infrastructure, backhaul, upgrades, on-going maintenance and call center expenses" and to establish "consistent funding for on-going development, capital replacement, and maintenance costs."
- The agreement and commitment of public safety agencies to plan collaboratively with neighbor agencies before buying communications equipment.
- Design connections and systems based on what is now in place and what users need.
- Having talented people and agility across the continuum.
- Multi-agency, multi-jurisdiction command communications capabilities.

Vision and Mission

Overview of the interoperable communications vision and mission of the State

The Texas SCIP has a long-term timeframe of **three years (January 2008-December 2010)**. However, due to the critical and urgent need for disaster emergency communications, the Texas SCIP will be reviewed, updated and re-aligned as needed. This will provide regions and/or agencies the opportunity to voice and prioritize new concerns.

Texas' long-term goal is to reach the optimal level of interoperability through a "high degree of leadership, planning, and collaboration among areas with commitment to and investment in sustainability of systems and documentation" as stated in the SAFECOM Interoperability Continuum.

SCIP Vision: By January 2015, provide all public safety and critical infrastructure responders at all levels of government, including local, county, special districts, tribal, state, and federal, with the highest level of real-time direct interoperable P25 standards based voice and future standards based data radio communications utilizing standards-based systems and incorporating the 700 MHz public safety frequencies.

SCIP Mission: Achieve the optimal level of voice and data communications interoperability, including growth, sustainability, and documentation of systems, through a high degree of leadership, planning, and collaboration with commitment to and investment in: 1) Building a governance structure of regional committees working with a statewide interoperability committee; 2) Developing SOP's where the National Incident Management System (NIMS) is integrated into the SOP's; 3) Expanding and/or implementing technology for regional shared systems; 4) Requiring training and exercises that are regular, comprehensive, and regional; and 5) Encouraging daily use of interoperable communications systems throughout the regions.

The SCIP goals and objectives are consistent with the Texas Homeland Security Strategic Plan as well as the Texas Emergency Management Plan, the Texas Department of Public Safety (DPS) Agency Strategic Plan, and the Urban Area Tactical Interoperable Communications Plans (TICP's).

On August 19, 2008, at the Texas SCIP annual Strategic Planning Conference, members met to begin SCIP revisions. One major outcome was to restructure the goals to align with the NECP and SAFECOM Continuum. Because funding is a high priority for Texas, the practitioners choose to add a specific goal and initiatives for funding. The “restructured” goals and objectives are:

- ◆ **Goal 1: Governance** - Achieve statewide interoperability by institutionalizing collaborative approaches across the state based upon common priorities and consensus at the regional level.
 - Objective: Ensure a coordinated governance structure, with representation from all regions, all disciplines, state, federal, and non-governmental agencies to plan and implement statewide communications interoperability for all stakeholders.
 - Key Strategy: Education and planning.
 - Milestone: Statewide Governance Charter adopted February 11, 2008; Regional Governance Charters to be adopted by 12/15/09.
- ◆ **Goal 2: Standard Operating Procedures** - Enhance use of interoperable communications systems with integrated NIMS compliant regional standard operating procedures (SOP's).
 - Objective: Improve coordination of first responder activities with integrated SOP's that are included in training programs and exercised routinely.
 - Key Strategy: Facilitate regional integrated SOP's.
 - Milestone: A common integrated SOP template developed by June 2009; and to be adopted by regions by 12-15-09.
- ◆ **Goal 3: Technology** - Build a statewide “system-of-systems” network consisting of regional standards-based shared voice and data communications systems. Voice systems will adhere to the APCO Project 25 (P25) suite of standards. Data systems will adhere to a suite of standards still to be defined.
 - Objective: Ensure operability while leveraging investments in existing communications infrastructure and systems when designing and implementing regional interoperability.
 - Key Strategy: Planning and project management.
 - Milestone: Adopted P25 standard for interoperable voice communications; Regional Interoperable Migration Plan (RIMP) template developed by June 2009 and to be adopted by regions by 12-15-09.
- ◆ **Goal 4: Training & Exercises** - Ensure integrated local and regional training & exercise opportunities are available to all emergency responders.
 - Objective: Ensure first responders at all levels are trained and routinely exercise communications equipment, procedures and coordination.
 - Key Strategy: Multiple training and exercise opportunities.
 - Milestone: Pilot program planning underway for regional online interoperability training.
- ◆ **Goal 5: Usage** - Accelerate use of regional P25 shared voice communications systems for daily operations as well as all-hazards emergency communications.
 - Objective: Expand and/or transition voice communications systems to P25 regional shared (fixed and mobile) systems.
 - Key Strategies: Planning and project management.

- Milestone: Communication Asset Survey & Mapping (CASM) database 80% complete by 12/15/09.
- ◆ **Goal 6: Funding** – Secure consistent funding for ongoing development, capital replacement, and operations and maintenance costs.
 - Objective: Develop a funding plan that will generate the funding resources necessary to acquire and sustain statewide voice and data communications interoperability.
 - Key Strategies: Planning, support and legislative action.
 - Milestone: Developed and adopted the SCIP funding plan.

Urban Areas

Overview of the Urban Areas in the State and to what extent they are mentioned in the SCIP

Texas has five DHS designated Urban Areas Security Initiative (UASI) regions. Houston is a Tier 1 UASI; Austin, Dallas/Fort Worth/Arlington, El Paso and San Antonio are Tier 2. The SCIP lists each of the urban areas individually, and provides details on the Tactical Interoperable Communications Plan (TICP) scorecard recommendations by category, and the progress of implementing said recommendations. The state's urban areas provided leadership along with their invaluable experience gained by the development of their TICP's, exercises and scorecard recommendations in the development of the SCIP.

The SCIP indicates that interoperable communications has been incorporated into the regimen of regional UASI exercises, and describes the interoperable communications strengths and weaknesses of each Urban Area in significant detail. It describes efforts underway to coordinate and integrate SOP's and training programs throughout the urban areas as well as statewide.

All Urban Areas are collaborating with their region in the development of the Regional Interoperable Communications Plan (RICP). This plan will describe the migration strategy to achieve regional P25 standards based voice interoperability by 2015. The plan will include initiatives, cost estimates, milestones and a timeline.

Governance

Overview of the governance structure and practitioner-driven approaches

The Governor appointed the Texas Radio Coalition (TxRC) as the governing body for the Texas SCIP. The TxRC is a member of the Governor's First Responder Advisory Council and thus designated by state law, Texas Government Codes 391 & 421, to advise the Governor on relevant homeland security issues. The TxRC membership is comprised of various state agencies and associations and the 24 regions that represent the local first responder perspective, a critical element that allows the TxRC to serve as a voice for that community. The Texas SCIP governance charter is based on the SAFECOM/Department of Homeland Security (DHS) template. The governance charter was adopted February 11, 2008.

The SCIP established governance structure is made up of the three bodies of the TxRC that includes a variety of State and local stakeholders and organizations. These groups are:

- **Executive Committee:** An oversight body composed of higher-level administrators who will be vested with final decision-making authority by the Governor of Texas. Members of this group include Federal, State, regional, and local representatives.
- **Steering Committee:** This advisory group has regular monthly planning and review meetings, plus Web-based conferences when needed. The group consists of inter-disciplinary, inter-jurisdictional representatives from across the State who have a broad knowledge of wireless communications and hold a formal or informal leadership position within their agency. Members of this group include Federal, State, local, and tribal representatives.
- **Working Groups:** Temporary, narrowly chartered Working Groups are formed for specific tasks, such as conducting research and collecting data.

Jurisdictions, state agencies and organizations in each of the 24 regions have established various Memoranda of Understanding (MOU)/Interlocal Agreements which include communications for mutual aid/emergency services during disaster situations. The Texas Interoperability Channel Plan established a Channel Plan MOU specifically for mutual aid communications.

The TxRC worked under the direction of former Texas Homeland Security Director Steve McCraw to develop the SCIP. Texas Radio Coalition Coordinator Mike Simpson was designated as the interim Texas Interoperability Coordinator until the position is filled on a full-time permanent basis.

Mike Simpson

TxRC Statewide Communications Interoperability Coordinator

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Governance Initiatives

The following table outlines the strategic governance initiatives, gaps, owners, and milestone dates to improve interoperable communications in Texas.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Hire a full-time SCIP Interoperability Coordinator and support staff	Dedicated leadership	Executive & Governance Committees; Governor's Office	Jan 2009 State Coordinator for Operable Communications working w/interim SCIP Coordinator; 2010 hire full-time SCIP Coordinator and staff	In Progress
Finalize the Texas SCIP Governance Charter	No formal	Governance	SCIP	Complete

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
based on the SAFECOM/DHS template. Tasks: Research, evaluate, draft, confirm.	governance agreement	Working Group; TxRC	Governance Charter adopted 2/11/08.	
Conduct annual Focus Group Sessions and annual Statewide Strategic Planning Conference.	Forum to voice operational requirements and current concerns	TxRC; Regions; State Agencies	Regions completed Focus Group Sessions by July 2009; Annual Conference 8/25/09.	Complete and on-going
Promote State legislation that enforces timely and cost-efficient execution of strategic plan initiatives.	Lack of interoperability and funding	Executive & Funding WG's	Begin meeting with legislators by May 2008. Adopt legislation within two years.	In Progress
Assist regions with governance development for regional shared interoperable communications systems. Tasks: 1) Request ICTAP assistance.	Planning and collaboration	Governance WG	Template & workshop completed 6/2009; Regional Governance adopted by 2010.	In Progress
Develop project accountability policies and procedures to ensure successful implementation and that "taxpayer's get maximum value for their dollars." Tasks (T): 1) develop and require project management and cost analysis reports; 2) provide project management training; 3) update vendors on accountability measures.	Lack of funding; robust accountability; project management	Technology Advisors & SAA	T-1,2 & 3 completed Sept 2008; On-going	Completed with on-going training

Standard Operating Procedures

Overview of the shared interoperable communications-focused SOPs

In 2005, all 24 state planning regions were directed to assess regional communications interoperability and submit a regional interoperability plan for approval by the Texas Office of Homeland Security. Most local government communications operations are guided by a combination of emergency plans, the communications annexes to those plans, and local and regional communications interoperability operating procedures. UASI areas and densely populated cities and counties have structured SOP's for communications interoperability. Most State agencies have documented standard procedures for emergency communications operations.

Governor Perry signed Executive Order RP40¹ on February 23, 2005, requiring NIMS as the state standard. The State Administrative Agency (SAA) requires agencies to certify NIMS compliance to be eligible for federal grant funding.

The TxRC SOP and Governance Working Groups developed a common regional template for integrated state and local agency SOPs for interoperable communications. Each Council of Governments (COG) will work with the state and local agencies within the region to adapt the SOP to regional requirements. The SOP follows the guidelines established by NIMS for incident command. State and local public safety agencies and all agencies responding to incidents within a region will be expected to comply with the regional SOP or provide other applicable documentation by December 15, 2009. As regional SOP's are developed, practitioners will have access to them via a web site.

SOP's will be revised when major changes are needed due to enhancements or other changes in the communications environment. Each COG and/or county emergency management coordinator will provide regional public safety agencies and personnel copies of the SOP and ongoing access to the SOP's for training purposes.

Texas is a subscriber to the Emergency Management Assistance Compact (EMAC). EMAC is a national governor's interstate mutual aid compact that facilitates the sharing of resources, personnel, and equipment, across state lines during times of disasters and emergencies. EMAC provides administrative oversight and support staff and formal business protocols, solves problems upfront with provisions in the compact including continuity of operations with SOP's, and integrates into existing command and control structures. Additional interoperability with adjacent states is provided by executing the TSIEC MOU and using the licensed Texas Interoperability Channels.

Urban Areas with major transit and bus service companies have provided these organizations with interoperable equipment or have established interfaces with the organizations' communications systems. SOPs and future exercises will include transit organizations.

The U. S. State Department is currently finalizing a communications interoperability agreement with Mexico, which will include the United States/Mexico border from Brownsville, Texas, to San Diego, California. The plan includes microwave links to the DHS Customs and Border Patrol's sector headquarters in the affected areas. Agencies operating along the border will have access to interoperable communications via these microwave linkages when completed.

SOP Initiatives

The following table outlines the SOP strategic initiatives, gaps, owners, and milestone dates to improve interoperable communications in Texas.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Each region will develop a SOP for response to emergencies. Tasks: 1) Develop a template for the common regional integrated State and local agency	Clear coordination and responsibility procedures	SOP & Governance Working	T-1 Template completed by 06/2009; T-2	In Progress

¹ Executive Order RP40, (<http://governor.state.tx.us/news/executive-order/3690/>).

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
SOOP; 2) Regions adopt common integrated SOP by 12/15/2009. 3) Review and post SOPs by 6/2010.		Groups; All regions	Regional SOPs adopted by 12/15/2009; T-3 Post SOPs by 6/2010.	
Evaluate and coordinate Mutual Aid Interoperability Channels in the 800 MHz and VHF frequency bands. Fund infrastructure improvements for implementation of all recognized mutual aid channels (800 MHz, 700 MHz, VHF, and UHF).	Mutual Aid channels are overloaded in metro and urban areas.	Governance and SOP/Training & Exercise WG's	2008- DPS to provide on-going coordination; Implement solutions by December 2010	In Progress
Promote a communications interoperability plan/agreement with Mexico.	Unable to communicate when providing/receiving mutual aid	Governance WG	Research and correspond w/State Dept. by 2010.	In progress

Technology

Overview of the technology approaches, current capabilities, and planned systems

Texas communications systems vary greatly and many areas are impacted by limited operability of public safety radio communications systems. Much of rural Texas has few telephone lines and less cellular telephone service because of sparsely populated areas, as well as barren regions and piney forest wilderness areas. In addition, Texas has the longest international border and the most traffic across the border. This is a problem area for communications because a significant portion of the international border between El Paso and Brownsville lacks communications operability and interoperability. Much of this area is very rural with no terrestrial radio or cellular communications of any kind. Parts of the Texas coastline from the Louisiana border to Brownsville have similar operability problems, e.g. little to no radio coverage in some areas, aged infrastructure, proprietary systems, and lack of capacity to add users and lack of frequencies to add channels. These circumstances often prevent responding local, state, and federal agencies from maintaining internal and/or interoperable communications during an incident and response. Because interoperability is essential for disaster emergency communications and the possibilities of catastrophic events along the Texas coastline and Mexico border are prominent, these areas remain a major concern for Texas.

Many Texas public safety agencies, regardless of the geography, operate on conventional wideband VHF systems. This allows for some interoperability in coverage areas; however, it is not spectrally efficient and there is a need for additional public safety radio channels in regions adjacent to suburban and urban areas. Due to the age and unreliability of some of these systems they only provide partial operability and limited if any interoperability. In addition, some areas such as Houston and Dallas/Fort Worth/Arlington use several different and aged radio systems within the cities for emergency communications.

The focus statewide was to achieve interoperability by providing gateways and patches where needed. We found that this process can be time consuming and somewhat confusing when seconds count and lives are at stake. The new goal is to provide seamless interoperability by building out standards-based shared systems to form a system of standards-based systems. This will be accomplished by leveraging existing infrastructure and systems and with standards-based communications system purchases. Texas's approach

is to support multi-agency regional systems and link them to provide expanded statewide coverage as needed, on demand, and as authorized.

The metropolitan areas typically operate on proprietary 800 MHz trunking systems with few P25 systems. Some of the proprietary systems are from 10 to 20 years old and system owners are experiencing problems finding adequate sources and supplies of replacement parts to keep the systems operable. Many system managers are unable to expand the capacity and coverage of systems because of a lack of available radio channels. Most regions operating on proprietary radio systems are equipped with audio gateways or console patching solutions to provide interoperability with adjacent cities and counties. Some of regions have mobile communications equipment with various types of interoperability components.

Local & Regional Data Capabilities: Many private radio systems and most regional radio systems currently have some data capability. This ranges from integrated voice and data on a voice radio system to mobile data operating on 800 and 900 MHz frequencies and mesh broadband systems. Applications include text messaging, mapping and database searches, and access to TLETS (Texas Law Enforcement Telecommunications System) and NCIC (National Crime Information Center).

The following tables list the major systems in Texas and include those used for interoperable communications, large regional systems specifically designed to provide interoperability solutions, and large wireless data networks.

State System Name	Description	Status
Texas Department of Public Safety	<p>The Texas Department of Public Safety (DPS) operates a state-wide digital VHF Project 25 compliant conventional radio system through 32 Communications Facilities strategically located throughout the State across the 254 counties. The Department has begun to migrate toward a hybrid trunked radio system utilizing 700 MHz where feasible. The first 700 MHz trunked radio intelli-repeater (IR) site was placed at the State Capitol and integrated with the City of Austin's Regional Radio System. DPS has also integrated five communications facilities into the Harris County Regional Radio System. These interfaces provide immediate interoperability for all users utilizing these systems. The Department will leverage existing radio infrastructure throughout the State by partnering with the regional radio systems and State Agencies to build the state-wide system of systems.</p> <p>The Department is working closely with the Texas Border Communications Project representatives to provide the equipment to connect the border radio systems together.</p> <p>The Department is the primary public safety first responder agency during catastrophic incidents. DPS is partnering with the regional planning areas in an effort to improve disaster emergency communications specifically along the Texas coastline. Through the State strategic reserve, DPS is able to provide interoperability equipment to establish immediate interoperability for disaster emergency communications dependent upon the size and scale of the events.</p> <p>Funding has recently been authorized for laptops/data terminals in all DPS Highway Patrol units. This equipment will operate on commercial networks to provide officers with text messaging capability for coordination of operations across multiple counties. It will also provide direct mobile access to TLETS. TLETS provides access to a variety of local, state, and federal criminal data base systems, e.g. NCIC.</p>	Existing and planned improvements
Austin-Travis County Regional Radio System	The Austin-Travis County Regional Radio System shares its system controller with the newly-upgraded Williamson County system, a trunked VHF system serving the Middle Rio Grande Valley, and a 700 MHz system built by Texas DPS in Austin. The combined systems serve more than 100 agencies and 15,000 users. Future projects will connect	Existing and Planned Improvements and expansions

State System Name	Description	Status
	agency-owned systems in counties adjacent to Austin-Travis County to the Austin-Travis switch, with the goal of creating a shared standards-based system that covers the entire 10 county planning region. Austin-Travis are currently pursuing integrated voice and data to provide short text messaging and global positioning information over the voice radio system. They're also working with Harris County and LCRA to provide connectivity and interoperability from Houston, Galveston, and Corpus Christi back to Austin.	
City of Bryan	Mixed mode, 800 MHz trunked system. Partnered with the City of College Station, Brazos County, Texas A & M University, the City of Brenham, and Washington County to form the Brazos Valley Wide Area Communications System (WACS) which is seeking funding for a P25, 700/800 MHz, shared system that will encompass the entire area, and be expandable into the remaining five counties of the Brazos Valley COG. The system will be linked to the adjoining regional shared systems of the Harris County Regional Radio System and the Austin-Travis County/Williamson County Regional Radio System.	Existing and Planned Improvements
Dallas, Dallas/Fort Worth/ Arlington Urban Area	Dallas proposed upgrade of an analog trunked 800 MHz communications system to include 700 MHz will provide interoperability to the Dallas public safety agencies as well as public works agencies. This system will serve a population of 1.25 million persons and provide communications for approximately 3,500 first responders and about 4,000 support and public works personnel. Dallas has set up some wireless video surveillance in a few areas; this may be expanded with available funding. The goal for the UASI area is to have seamless interoperability among all Metroplex systems. There are 15 to 20 proprietary 800 MHz trunked systems in the area. A multi-phased approach is being considered, due to the high cost of implementing new systems in the UASI area. The project currently being evaluated is the installation of a 700 MHz P25 system overlay of the Region (3-6 channels) for agencies to roam outside their jurisdictional boundaries	Existing and Planned Improvements
East Texas Medical Center (ETMC) System	Covers 15 counties, providing primary communications for 250 local and volunteer, governmental and non-governmental public safety agencies and 5,000 users. Operates an 800 MHz analog trunked system through rural counties in east Texas. System is no longer supported by the vendor and must be transitioned to P25. The new ETMC sites will tie into the Harris County/H-GAC Regional P25 System extending that coverage from Galveston to Dallas to Louisiana. The joining of the systems will create a P25 standards-based system that uses 700/800 MHz trunking technologies covering 25 counties.	Existing and planned improvements
El Paso	In the process of upgrading to a standards-based interoperable communications system. This will provide interoperability and coverage for the UASI area (City of El Paso and County of El Paso). This portion of the plan includes interoperable communications in both 800 MHz and VHF frequencies. Officials are planning to build out interoperable communications coverage in Region 8's six counties, and linking the El Paso system to the Texas Border Communications project.	Existing and Planned Improvements
Harris County Regional Radio System	A regional system with a coverage area larger than most states; Harris County has 11 counties on the system, 35,000 subscriber units, and about 550 agencies on the system; the system is operational in both the 800MHz and 700MHz bands using P25 compliant trunk technologies. Regional subscribers to the system include: Federal, State and Local Public safety and Law Enforcement Agencies, Fire Departments, Public Works Departments, Cities, Counties, public schools and University systems, in addition to the Texas Medical Center and several private air ambulance services.	Existing and planned expansion
City of Houston	In the process of building a new interoperable voice P25, 700 MHz trunked system that will be linked to regional radio systems across Texas; @ 20,000 subscriber units expected. This system will provide in-building public safety radio coverage for multiple agencies in and around the City of Houston. The system will have between 45-50 sites and cost between \$100 - \$150 million.	Planned (in the final stages of contract negotiations)

State System Name	Description	Status
	Current data capability includes: WEB EOC with up to 1000 users dependent upon event; Houston CAD handles 5000+ calls per day; Fire RMS with 1000+ users; OLO (On-Line Offense) Houston PD RMS with approximately 5000 users; and voice logger that records 10,000+ calls.	
Lower Colorado River Authority	900 MHz trunked system covering 37,000 square miles and 54 counties. Implementing 700 MHz overlay to existing LCRA system. This equipment will allow for a seamless integration into existing regional systems, as well as the agencies' existing conventional systems for interoperability. • Completed 13 of the 49 900 MHz that are in service at this time. With additional funding we will be able to complete the overlay of the existing 900 MHz system with gateway communications for interoperability to existing regional systems as well as legacy conventional system as required.	Existing and planned improvements
Middle Rio Grande Development Council Regional Radio System	Multi-phase VHF P25 trunking system supporting the multi-agency and multi-discipline jurisdictions along the Texas-Mexico border area which include 9 counties, 51 membership agencies, the Kickapoo Traditional Tribe of Texas, plus federal and state users.	Existing and planned improvements
San Antonio Area	Intend to enhance the existing 800 MHz coverage area by consolidating several non-simulcast sites into new simulcast sites. In addition, plan to improve system interoperability by creating 700 MHz interoperability overlays and establish switch-to-switch connections with several public safety and critical infrastructure agencies (LCRA, VIA Transit, Corpus Christi / Nueces County, AEP, etc.) locally and regionally. These overlays and connections will leverage existing 800 MHz and 900 MHz coverage areas, existing infrastructure, and resources throughout multiple regions but especially along major coastal evacuation routes, logistical support corridors, and between regional medical centers. Currently implementing a regional emergency communications information sharing and mobile data system providing record management system (RMS), and Field Reporting Systems. All public safety answering points (PSAP's) within Bexar, Comal, and Guadalupe counties will soon be connected with dedicated fiber.	Existing and Planned Improvements

Technology Initiatives

The following table outlines the short-term technology strategic initiatives, gaps, owners, and milestone dates to improve interoperable communications in Texas.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Provide operability throughout the State by implementing solutions to close gaps found through user surveys and CASM data analysis. Tasks: 1) Identify gaps; 2) Implement solutions.	No operability in parts of Texas	Technology & Funding Working Groups	Complete CASM data entry by 12/15/09; ID gaps by 2011; Implement solutions by 2013	In Progress

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Assist regions in the development of plans to migrate radio assets to a standards-based, shared System of Systems. Task: 1) Establish and mandate the technology standard for Texas public safety communications; 2) Form regional working groups to leverage existing systems and infrastructure when building new or upgrading and expanding systems; 3) Identify solutions that incorporate existing technologies and allows for new technologies and functionality in the future.	Regional interoperability, Aged equipment	TxRC, Technology Working Group, All Regions, State Agencies	Task 1 & 2 completed 1Qtr 2008; Task 3 to be completed by 2010.	In Progress
Develop a detailed plan for operability and interoperable communications along the Texas coast from Louisiana to Mexico. Tasks: 1) Participate with DHS OEC and FEMA as they further develop the Gulf Coast Communications Interoperability System concept to support disaster communications from Florida to Texas; 2) Build on existing regional systems and incorporate new technologies; 3) build-in resilience and add redundancy and surge requirements throughout regional systems; 4) include interstate interoperable communications with Louisiana and Mexico;	Coverage, operability, Aged equipment, Interoperability, Disaster communications	TxRC; Regions 15, 16, 17, 20 & 21; State Agencies	T-1 Workshop w/ DHS, OEC, FEMA, State and Local Agencies held 12/2008; Created the Communications Coordination Group (CCG) to provide coordinated responses during disasters 1Qtr 09; ID gaps and requirements by 2011; Implement T-2, 3 & 4 solutions by 2013.	In progress
Develop a plan for operability and interoperable communications along the Texas/Mexico Border from El Paso to Brownsville. Tasks: 1) Engage with DHS OEC and CBP to further develop the Border Communications capabilities; Plan to include 2) Build on existing regional systems and incorporate new technologies; 3) Interstate interoperable communications with New Mexico; 4) Disaster Emergency Communications surge requirements; 5) Coverage, capacity and console connectivity along the entire coast.	Coverage, operability, Aged equipment, Interoperability, Disaster communications	TxRC; Border Radio Coalition; BSOC; State Agencies	T-1 Completed: workshop of State, local & Federal agencies Dec. 2008; Plan w/ T-2, 3, 4 & 5 to be completed by 2011.	In Progress
Develop a process to address frequency coordination, radio interference, and conflict mediation.	Insufficient channel availability; Interference	Texas Radio Coalition, DPS	DPS staffed position July 2009.	Completed

Training and Exercises

Overview of the diversity, frequency, and inter-agency coordination of training and exercises

Training

Texas has incorporated interoperable communications training into all of the Governor's Division of Emergency Management state sponsored training programs. Texas is implementing regional training programs that include:

- Providing stand-alone single discipline and multi-discipline interoperable communications training courses through existing State and regional training academies and organizations.
- Providing a basic multi-disciplinary interoperable communications course online.

The State has a number of specialized communications teams who all have training curriculum, requirements, and annual required training hours.

In addition, standard communications personnel training curricula will be modified to include interoperability training modules, so that new dispatchers are schooled in the fundamental procedures prior to assuming their duties on live systems. The State's SOP's will be updated to reflect the training for primary and back-up communication unit leaders. First responders will be provided detailed instruction on radio interoperability as well as regular hands-on "refresh" training. Vendors will be encouraged to provide electronic copies of detailed training materials and programs for mass distribution and local customization. Clear-cut processes will be implemented to test and exercise SOP's on a routine and cost-efficient basis.

Exercises

The Governor's Division of Emergency Management (GDEM) is conducting regional exercises to test regional plans and interoperable communications equipment and identify needed improvements in plans, procedures, equipment, and training. These exercises include responders from federal, state, local, and tribal agencies.

All GDEM training and exercise programs are NIMS compliant. On February 23, 2005, Governor Perry issued Executive Order RP 40 adopting NIMS as the statewide system to be used for emergency prevention, preparedness, response, recovery, and mitigation activities, as well as in support of all actions taken to assist local entities.

Training and Exercises Initiatives

The following table outlines the training and exercises strategic initiatives, gaps, owners, and milestone dates to improve interoperable communications in Texas.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Enhance training and exercise programs. Tasks: 1) Have individuals trained and certified as COM-L trainers; 2) Identify regional Communications Unit Leaders and provide necessary training; 3) Develop templates for drills that can be incorporated into and augment, the State's existing training and exercise programs.	Lack of local training and education on current interoperability capabilities and structure	TxRC & GDEM	T-1 ID DPS COMLs by Mar.2010; Complete T-2&3 by 2011.	In Progress

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Provide online training programs with testing and certifications. Tasks: 1) Develop a regional pilot program to be tested and evaluated; 2) Expand the pilot to multiple regions; 3) Expand the pilot statewide.	Multiple training venues	TxRC, CAPCOG, SOP & Training and Exercise WG's	T-1 Complete 1 st Pilot by 2010; Complete T-2 by 2013; Complete T-3 by 2015.	In Progress
Develop and exercise CCG emergency disaster communications capabilities.	Reliable coordinated communications for emergency disaster response.	TxRC, Governor's Division of Emergency Management (GDEM), State, Federal & Local agencies, private industry.	ID and develop capabilities by June 2009; Start exercises by June 2009; ongoing quarterly exercises	Completed and on-going

Usage

Overview of the testing of equipment and promotion of interoperability solutions

Regular usage of interoperable communications procedures and equipment will be required and made uncomplicated by providing templates for simple drills that exercise capabilities (e.g., console patches, gateways). Communications personnel will be expected to voice-test calling channels with subscribers in the field regularly. Remote enabling/disabling of mutual aid repeaters as well as simple console patches (e.g., 8TAC-91 patched to a law enforcement sector channel) likewise will be practiced regularly.

Usage Initiatives

The following table outlines the usage strategic initiatives, gaps, owners, and milestone dates Texas outlined in its SCIP to improve interoperable communications.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
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Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Develop and keep current an interactive statewide communications assessment database. Task: 1) Enter 80 percent of statewide communications assets into the CASM tool to validate agency radio communications capabilities and survey results. 2) Jurisdictions must routinely update CASM information to show commitment to adhere to the SCIP and to receive grant funding.	Capabilities assessment	Regions & State Agencies	Complete T-1 by 2010; T-2 is on-going.	In Progress
Implement programs to require routine use of interoperability equipment. Tasks: 1) Provide templates for regular usage of interoperable communications procedures and equipment that exercise capabilities (e.g., console patches, gateways); 2) Voice-test calling channels with subscribers in the field.	Knowledge of equipment	SOP & Training & Exercise WG	T-1 completed June 2009; T-2 on-going from Jan. 2010.	In Progress
90% of UASI areas provide response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.	Interoperability	TxRC, UASI's, state agencies	ICTAP workshop by Jun 2009; Test w/ICTAP Tool by 2010.	In Progress
75% of non-UASI jurisdictions provide response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.	Interoperability; response-level emergency communications in rural Texas	TxRC, state agencies Panhandle RPC, Permian Basin RPC, West Central Texas COG	Develop methodology and performance metrics to achieve NECP Goal 2 statewide by Mar 2010; Test w/ICTAP tool by 2011.	In Progress
75% of all jurisdictions provide response-level emergency communications within three hours in the event of a significant incident.	Interoperability	TxRC, All regions and state agencies	Start CCG exercises by June 2009; Test w/ICTAP tool by 2013.	In Progress

Funding

Funding Initiatives

The following table outlines the strategic funding initiatives, gaps, owners, and milestone dates to improve interoperable communications in Texas.

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Operation Texas Talks: Secure consistent funding for ongoing development, capital replacement, and maintenance costs. Tasks: 1) Develop funding plan; 2) Identify new and existing sources of funding; 3) Promote legislative action for public safety communications funding.	No dedicated funding mechanism for communications and interoperability efforts	Executive Committee & Funding WG; Regions	Completed T-1 by Aug 2008; T-2 is on-going; T-3 Activities on-going until legislative action is successful.	In Progress

Initiative	Gap	Owner	Milestone Date	Status (Complete, In Progress, Not Started)
Develop and distribute a report on the status of public safety emergency communications throughout Texas regions, based on annual Focus Group Surveys.	Statewide operability and interoperability	Funding WG	Complete report and distribute to regions and Texas Legislators by Jun 2010.	In Progress
Prioritize Public Safety Interoperable Communications (PSIC), DHS and State funds for immediate and critical communications needs. Tasks: 1) Distribute grants, as available, to build out operability and statewide interoperability. 2) Assist regions and state agencies in complying with the FCC mandated "narrowbanding" requirements by 2013. 3) Identify and fund ongoing operations, maintenance and back-haul expenses to support statewide system of systems.	Lack of funding	Working Groups; Regions	Provided SAA input on PSIC priorities by Oct 2007; T-1 ongoing as grants are announced; T-2 to be completed by 2012; T-3 to be completed by 2015.	Completed and In Progress.

Texas SCIP Alignment with the NECP

- **NECP Milestone 1.1.2:** By 7/31/09, establish a full-time statewide interoperability coordinator or equivalent positions.
 - **Supports Initiative 1.1:** Facilitate the development of effective governance groups and designate emergency communication leadership roles.
- ☑ Texas has an interim Interoperability Coordinator. The TX SCIP includes an initiative to hire full-time Interoperability Coordinator by 2010.
- **NECP Milestone 1.1.5:** By 7/31/09, the Statewide Interoperability Governing Body (SIGB) should incorporate the recommended membership as outlined in the SCIP Guidebook and should be established via legislation or executive order by an individual State's governor.
 - **Supports Initiative 1.1:** Facilitate the development of effective governance groups and designate emergency communication leadership roles.
- ☑ The Governor appointed the Texas Radio Coalition (TxRC) as the governing body for the Texas SCIP. The Texas SCIP governance charter is based on the SAFECOM/DHS template. It was adopted February 11, 2008.
- **NECP Milestone 1.3.11:** By 7/31/09, tactical planning among Federal, State, local, and tribal governments occurs at the regional interstate level.
 - **Supports Initiative 1.3:** Integrate strategic and tactical emergency communications planning efforts across all levels of government.
- ☑ All 24 State planning regions were directed to assess regional communications interoperability and develop communications SOPs and COG TICPs. Each region also identified interoperability needs to be addressed within the next three years.
- **NECP Milestone 3.1.37:** By 1/31/10, emergency response agencies program an appropriate set of frequency-band-specific nationwide interoperability channels into all existing emergency responder radios and incorporate the use of the channels into SOPs, training, and exercises at the Federal, State, regional, local, and tribal levels.

- **Supports Initiative 3.1:** Standardize and implement common operational protocols and procedures.
- ☑ The TX Interoperability Channel Plan (TICP) is being used as the foundation for interoperability within TX. The TX Statewide Interoperability Executive Committee (TSIEC) will utilize the naming conventions as detailed in the NPSTC consensus plan as the basis for updating the existing TICP.
- **NECP Milestone 3.1.38:** By 7/31/10, SCIP reflects plans to eliminate coded substitutions throughout the Incident Command System (ICS), and agencies incorporate the use of existing nationwide interoperability channels into SOPs, training, and exercises at the Federal, State, regional, local, and tribal levels.
 - **Supports Initiative 3.1:** Standardize and implement common operational protocols and procedures.
- ☑ The TX Interoperability Channel Plan and Channel Plan MOU require agencies to use “plain language” without 10-codes or agency-specific codes/jargon.
- **NECP Milestone 3.2.39:** By 7/31/09, all Federal, State, local, and tribal emergency response providers within UASI jurisdictions have implemented the Communications and Information Management section of the NIMS.
 - **Supports Initiative 3.2:** Implementation of the NIMS and NRF (National Response Framework) across all levels of government.
- ☑ On February 23, 2005, Governor Rick Perry issued Executive Order RP 40 adopting the National Incident Management System (NIMS) as the statewide system to be used for emergency prevention, preparedness, response, recovery, and mitigation activities, as well as in support of all actions taken to assist local entities.
- **NECP Milestone 7.2.84:** By 7/31/10, complete disaster communications training and exercises for all 56 States and territories.
 - **Supports Initiative 7.2:** Implement disaster communication planning and preparedness activities.
- ☑ TX SCIP identifies the need to provide and require interoperable communications training, along with any and all emergency response and disaster management training, and exercises, at the regional level. This training is to be made available to all responders through various means such as classroom training, table-top drills, on-line and/or distributed workbooks, etc.
- **NECP Milestone 7.2.85:** By 7/31/10, all Federal, State, local, and tribal agencies in UASIs will have defined alternate/backup capabilities in emergency communications plans.
 - **Supports Initiative 7.2:** Implement disaster communication planning and preparedness activities.
- ☑ TX SCIP identifies three different redundancies in communication: 1)The Radio Amateur Civil Emergency Service 2) The TX Regional Response Network and 3) A Strategic Technology Reserve. Redundancies are in place on a State, regional, urban level.

Appendix I:

U.S. Dept. of Homeland Security National Emergency Communications Plan - 2008



National Emergency Communications Plan

July 2008



**Homeland
Security**

Rev. Aug 7, 2008

Message from the Secretary

Numerous after-action reports from major incidents throughout the history of emergency management in our Nation have cited communications difficulties among the many responding agencies as a major failing and challenge to policymakers. Congress and the Administration have recognized that a successful response to a future major incident—either a terrorist attack or natural disaster—requires a coordinated, interoperable response by the Nation’s public safety, public health, and emergency management community, both public and private, at the Federal, State, tribal, territorial, regional, and local levels.

Recognizing the need for an overarching strategy to help coordinate and guide such efforts, Congress directed the Department of Homeland Security to develop the first **National Emergency Communications Plan (NECP)**. The purpose of the NECP is to promote the ability of emergency response providers and relevant government officials to continue to communicate in the event of natural disasters, acts of terrorism, and other man-made disasters and to ensure, accelerate, and attain interoperable emergency communications nationwide.

Natural disasters and acts of terrorism have shown that there is no simple solution—or “silver bullet”—to solve the communications problems that still plague law enforcement, firefighting, rescue, and emergency medical personnel.

To strengthen emergency communications capabilities nationwide, the Plan focuses on technology, coordination, governance, planning, usage, training and exercises at all levels of government. This approach recognizes that communications operability is a critical building block for interoperability; emergency response officials first must be able to establish communications within their own agency before they can interoperate with neighboring jurisdictions and other agencies.

The NECP seeks to build on the substantial progress that we have made over the last several years. Among the key developments at the Federal, State, regional, and local levels are:

- Most Federal programs that support emergency communications have been consolidated within a single agency— **DHS**—to improve the alignment, integration, and coordination of the Federal mission.
- All 56 States and U.S. territories have developed **Statewide Communication Interoperability Plans** (SCIP) that identify near- and long-term initiatives for improving communications interoperability.
- The Nation’s **75 largest urban and metropolitan areas** maintain policies for interoperable communications.

- The **SAFECOM Interoperability Continuum** is widely accepted and used by the emergency response community to address critical elements for planning and implementing interoperability solutions. These elements include governance, standard operating procedures, technology, training and exercises, and usage of interoperable communications.
- The DHS Federal Emergency Management Agency (FEMA) is establishing **Regional Emergency Communications Coordination** (RECC) Working Groups in each of the 10 FEMA regions to coordinate multi-state efforts and measure progress on improving the survivability, sustainability, and interoperability of communications at the regional level.

In developing the NECP, DHS worked closely with stakeholders from all levels of government to ensure that their priorities and activities were addressed. The Department will continue to coordinate with Federal, State, local, and tribal governments, and the private sector, to ensure that the NECP is implemented successfully.

Ultimately, the NECP's goals cannot be achieved without the support and dedication of the emergency response community that was instrumental in crafting it. I ask everyone within the emergency response community to take ownership of the NECP's initiatives and actions and to dedicate themselves to meeting the key benchmarks. Working together, we can achieve our vision:

Emergency responders can communicate—

As needed, on demand, and as authorized;

At all levels of government; and

Across all disciplines.

Michael Chertoff
Secretary of Homeland Security

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Executive Summary

Every day in cities and towns across the Nation, emergency response personnel respond to incidents of varying scope and magnitude. Their ability to communicate in real time is critical to establishing command and control at the scene of an emergency, to maintaining event situational awareness, and to operating overall within a broad range of incidents. However, as numerous after-action reports and national assessments have revealed, there are still communications deficiencies that affect the ability of responders to manage routine incidents and support responses to natural disasters, acts of terrorism, and other incidents.¹

Recognizing the need for an overarching emergency communications strategy to address these shortfalls, Congress directed the Department of Homeland Security's (DHS) Office of Emergency Communications (OEC) to develop the first **National Emergency Communications Plan** (NECP). Title XVIII of the Homeland Security Act of 2002 (6 United States Code 101 et seq.), as amended, calls for the NECP to be developed in coordination with stakeholders from all levels of government and from the private sector.

In response, DHS worked with stakeholders from Federal, State, local, and tribal agencies to develop the NECP—a strategic plan that establishes a national vision for the future state of emergency communications. The desired future state is that emergency responders can communicate:

As needed, on demand, and as authorized
At all levels of government
Across all disciplines

To measure progress toward this vision, three strategic goals were established:

Goal 1—By 2010, 90 percent of all high-risk urban areas designated within the Urban Areas Security Initiative (UASI)² are able to demonstrate response-level emergency communications³ within one hour for routine events involving multiple jurisdictions and agencies.

Goal 2—By 2011, 75 percent of non-UASI jurisdictions are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.

Goal 3—By 2013, 75 percent of all jurisdictions are able to demonstrate response-level emergency communications within three hours, in the event of a significant incident as outlined in national planning scenarios.

¹ Examples include *The Federal Response to Hurricane Katrina: Lessons Learned*, February 2006; *The 9-11 Commission Report*, July 2004; and *The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, February 2006.

² As identified in FY08 Homeland Security Grant Program or on the FEMA Grants website: http://www.fema.gov/pdf/government/grant/uasi/fy08_uasi_guidance.pdf.

³ Response-level emergency communication refers to the capacity of individuals with primary operational leadership responsibility to manage resources and make timely decisions during an incident involving multiple agencies, without technical or procedural communications impediments.

To realize this national vision and meet these goals, the NECP established the following seven objectives for improving emergency communications for the Nation's Federal, State, local, and tribal emergency responders:

1. Formal decision-making structures and clearly defined leadership roles coordinate emergency communications capabilities.
2. Federal emergency communications programs and initiatives are collaborative across agencies and aligned to achieve national goals.
3. Emergency responders employ common planning and operational protocols to effectively use their resources and personnel.
4. Emerging technologies are integrated with current emergency communications capabilities through standards implementation, research and development, and testing and evaluation.
5. Emergency responders have shared approaches to training and exercises, improved technical expertise, and enhanced response capabilities.
6. All levels of government drive long-term advancements in emergency communications through integrated strategic planning procedures, appropriate resource allocations, and public-private partnerships.
7. The Nation has integrated preparedness, mitigation, response, and recovery capabilities to communicate during significant events.

The NECP also provides recommended initiatives and milestones to guide emergency response providers and relevant government officials in making measurable improvements in emergency communications capabilities. The NECP recommendations help to guide, but do not dictate, the distribution of homeland security funds to improve emergency communications at the Federal, State, and local levels, and to support the NECP implementation.

Communications investments are among the most significant, substantial, and long-lasting capital investments that agencies make; in addition, technological innovations for emergency communications are constantly evolving at a rapid pace. With these realities in mind, DHS recognizes that the emergency response community will realize this national vision in stages, as agencies invest in new communications systems and as new technologies emerge.

There is no simple solution, or "silver bullet," for solving emergency communications challenges, and consequently DHS' approach to the NECP involves making improvements at all levels of government, in technology, coordination and governance, planning, usage, and training and exercises. This approach also recognizes that communications operability is a critical building block for interoperability; emergency response officials must first establish reliable communications within their own agency before they can interoperate with neighboring jurisdictions and other agencies.

Finally, DHS acknowledges that the Nation does not have unlimited resources to address deficiencies in emergency communications. Consequently, the NECP will be used to identify and prioritize investments to move the Nation toward this vision. As required by Congress, the NECP will be a living document subject to periodic review and updates by DHS in coordination with stakeholders. Future iterations will be revised based on progress made toward achieving the NECP's goals, on variations in national priorities, and on lessons learned from after-action reports.

1. Introduction

The ability of emergency responders to effectively communicate is paramount to the safety and security of our Nation. During the last three decades, the Nation has witnessed how inadequate emergency communications capabilities can adversely affect response and recovery efforts. Locally, agencies developed ad hoc solutions to overcome these challenges. The issue of inadequate coordination of emergency communications received national attention in the aftermath of the January 1982 passenger jet crash into the 14th Street Bridge (and, subsequently, the Potomac River) near downtown Washington, DC. The inability of multiple jurisdictions to coordinate a response to the Air Florida crash began to drive regional collaboration. More recently, the terrorist attacks of September 11, Hurricane Katrina, and other natural and man-made disasters have demonstrated how emergency communications capabilities—in particular the lack of those capabilities—impact emergency responders, public health, national and economic security, and the ability of government leaders to maintain order and perform essential functions.⁴

During each of these events, the lack of coordinated emergency communications solutions and protocols among the responding agencies hindered response and recovery efforts. These events raised awareness of the issue among public policymakers and highlighted the critical role emergency communications plays in incident response. These events also prompted numerous national studies and assessments on the state of emergency communications, which in turn has helped DHS to formulate a unified approach for addressing emergency communications.⁵

1.1 Purpose of the National Emergency Communications Plan

The Homeland Security Act of 2002, as amended in 2006, mandated the creation of an overarching strategy to address emergency communications shortfalls. In addition, the emergency response community has sought national guidance to support a more integrated coordination of emergency communications priorities and investments.

- Set national goals and priorities for addressing deficiencies in the Nation's emergency communications posture
- Provide recommendations and milestones for emergency response providers, relevant government officials, and Congress to improve emergency communications capabilities

⁴ “Hurricane Katrina was the most destructive natural disaster in U.S. history. The storm crippled thirty-eight 911-call centers, disrupting local emergency services, and knocked out more than 3 million customer phone lines in Louisiana, Mississippi, and Alabama. Broadcast communications were likewise severely affected, as 50 percent of area radio stations and 44 percent of area television stations went off the air.” White House Report, *The Federal Response to Katrina: Lessons Learned*, February 2006.

⁵ Such as the *Final Report of the National Commission of Terrorist Attacks Upon the United States*, December 2001; the White House Report, *The Federal Response to Katrina: Lessons Learned*, February 2006; and the *Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks—Report and Recommendations to the Federal Communications Commission*, June 12, 2006, all of which documented the numerous failures in emergency communications among emergency responders, which affected their ability to effectively respond to these incidents.

As a result, Congress directed the DHS' Office of Emergency Communications (OEC)⁶ to develop a plan to:

- Identify the capabilities needed by emergency responders to ensure the availability and interoperability of communications during emergencies, and identify obstacles to the deployment of interoperable communications systems;
- Recommend both short- and long-term solutions for ensuring interoperability and continuity of communications for emergency responders, including recommendations for improving coordination among Federal, State, local, and tribal governments;
- Set goals and timeframes for the deployment of interoperable emergency communications systems, and recommend measures that emergency response providers should employ to ensure the continued operation of communications infrastructure;
- Set dates by which Federal agencies and State, local, and tribal governments expect to achieve a baseline level of national interoperable communications, and establish benchmarks to measure progress; and
- Guide the coordination of existing Federal emergency communications programs.⁷

1.2 Scope of the National Emergency Communications Plan

The National Emergency Communications Plan (NECP) focuses on the emergency communications needs of response personnel in every discipline, at every level of government, and for the private sector and non-governmental organizations (NGO). **Emergency communications** is defined as the ability of emergency responders to exchange information via data, voice, and video as authorized, to complete their missions. Emergency response agencies at all levels of government must have interoperable and seamless communications to manage emergency response, establish command and control, maintain situational awareness, and function under a common operating picture, for a broad scale of incidents.

Emergency communications consists of three primary elements:

1. **Operability**—The ability of emergency responders to establish and sustain communications in support of mission operations.
2. **Interoperability**—The ability of emergency responders to communicate among jurisdictions, disciplines, and levels of government, using a variety of frequency bands, as needed and as authorized. System operability is required for system interoperability.
3. **Continuity of Communications**—The ability of emergency response agencies to maintain communications in the event of damage to or destruction of the primary infrastructure.

⁶ The OEC supports the Secretary of Homeland Security in developing, implementing, and coordinating interoperable and operable communications for the emergency response community at all levels of government. The OEC was directed by Title XVIII of the Homeland Security Act of 2002, as amended, to lead the development of a National Emergency Communications Plan.

⁷ Appendix 4 provides more detailed information on DHS programs supporting emergency communications.

1.2.1 Approach to Developing the NECP

The majority of emergency incidents occur at the local level. Therefore, improving emergency communications—specifically, operability, interoperability, and continuity of communications—cannot be accomplished by the Federal Government alone. For this reason, working through OEC, DHS used a stakeholder-driven approach to develop the NECP, one that included representatives from the Federal, State, and local responder communities as well as from the private sector.⁸ Exhibit 1 lists the partnerships and groups that provided input to the NECP.

Exhibit 1: Key Homeland Security and Emergency Communications Partnerships

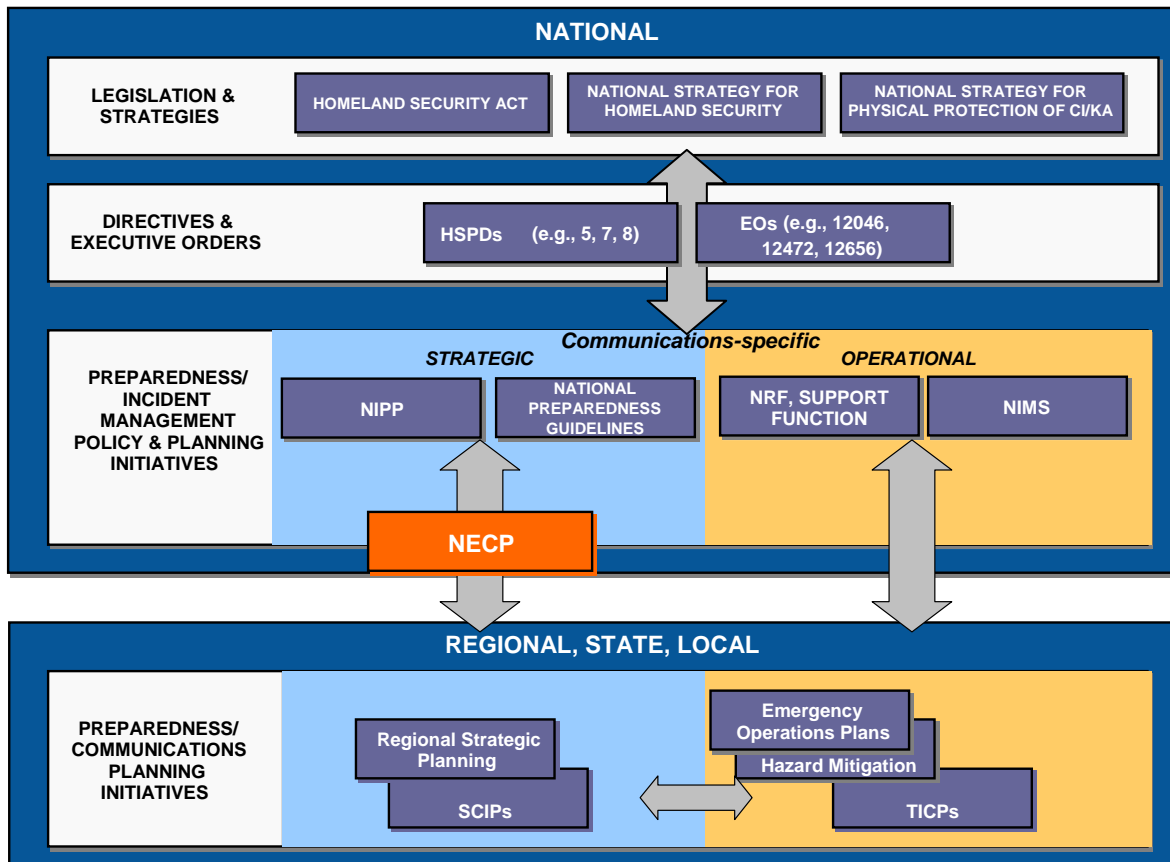
Entity	Roles and Responsibilities
SAFECOM Executive Committee (EC) and Emergency Response Council (ERC)	The SAFECOM EC serves as the leadership group of the ERC and as the SAFECOM program's primary resource to access public safety practitioners and policymakers. The EC provides strategic leadership and guidance to the SAFECOM program on emergency-responder user needs and builds relationships with the ERC to leverage the ERC subject matter expertise. The SAFECOM ERC is a vehicle to provide a broad base of input from the public safety community on its user needs to the SAFECOM program. The ERC provides a forum for individuals with specialized skills and common interests to share best practices and lessons learned so that interested parties at all levels of government can gain from one another's experience. Emergency responders and policymakers from Federal, State, local, and tribal governments compose the SAFECOM EC and ERC.
Emergency Communications Preparedness Center (ECPC)	The ECPC was created under the authority of Title XVIII of the Homeland Security Act of 2002, as amended in 2006, to serve as the focal point and clearinghouse for intergovernmental information on interoperable emergency communications. The ECPC is an interdepartmental organization, currently composed of 12 Federal departments and agencies, that assesses and coordinates Federal emergency communications operability and interoperability assurance efforts. The ECPC is the focal point for interagency emergency communications efforts and seeks to minimize the duplication of similar activities within the Federal Government. It also acts as an information clearinghouse to promote operable and interoperable communications in an all-hazards environment.
Federal Partnership for Interoperable Communications (FPIC)	The FPIC is a coordinating body that focuses on technical and operational matters within the Federal wireless communications community. Its mission is to address Federal wireless communications interoperability by fostering intergovernmental cooperation and by identifying and leveraging common synergies. The FPIC represents more than 40 Federal entities; its membership includes program managers of wireless systems, radio communications managers, Information Technology (IT) and Land Mobile Radio (LMR) specialists, and telecommunications engineers. State and local emergency responders participate as advisory members.
Project 25 Interface Committee (APIC)	As part of the Project 25 (P25) standards development process, the Telecommunications Industry Association (TIA) developed the APIC to resolve issues that arose during that process. The APIC is composed of private sector representatives and emergency response officials and serves as a liaison to facilitate user community and private sector relationships regarding the evolution and use of P25 standards.
National Public Safety Telecommunications Council (NPSTC)	The NPSTC is a federation of national public safety leadership organizations dedicated to improving emergency response communications and interoperability through collaborative leadership. The NPSTC is composed of State and local public safety representatives. In addition, Federal, Canadian, and other emergency communications partner organizations serve as liaisons to the NPSTC.

⁸ Appendix 6 details the three-phased approach to develop the NECP that relied on stakeholder involvement.

Entity	Roles and Responsibilities
National Security Telecommunications Advisory Committee (NSTAC)	The NSTAC is composed of up to 30 private sector executives who represent major communications and network service providers as well as IT, finance, and aerospace companies. Through the National Communications System (NCS) , the NSTAC provides private sector-based analyses and recommendations to the President and the Executive Branch on policy and enhancements to national security and emergency preparedness (NS/EP) communications.
Critical Infrastructure Partnership Advisory Council (CIPAC)	The CIPAC is a DHS program established to facilitate effective coordination between government infrastructure protection programs and the infrastructure protection activities of the owners and operators of critical infrastructure and key resources. The CIPAC enables public and private sector representatives to engage in candid, substantive discussions regarding the protection of the Nation's critical infrastructure.

The NECP has been designed to complement and support overarching homeland security and emergency communications legislation, strategies, and initiatives. The NECP applies guidance from these authorities, including key principles and priorities, to establish the first national strategic plan that is focused exclusively on improving emergency communications for emergency response providers nationwide. As demonstrated in Exhibit 2 below, the NECP provides a critical link between national communications priorities and strategic and tactical planning at the regional, State, and local levels. Appendix 2 provides a comprehensive listing and explanation of these documents.

Exhibit 2: Key Homeland Security and Emergency Communications Authorities



1.3 Organization of the NECP

The NECP establishes a national vision for the desired future state of emergency communications. It sets strategic goals, national objectives, and supporting initiatives to drive the Nation toward that future state. The NECP also provides recommended milestones to guide emergency response providers and relevant government officials as they make measurable improvements to their emergency communications capabilities. As illustrated in Exhibit 3, the NECP approach is based on three logical steps that inform the organization of this document: 1) defining the future state of emergency communications; 2) developing a strategy to achieve the future state; and 3) implementing the future state and measuring how well it is being implemented.

Exhibit 3: NECP Approach and Organization



1.3.1 Defining the Future State of Emergency Communications

In this first step, DHS worked with stakeholders to develop an overall **Vision** statement (Section 2.1) and established three high-level **Goals** (Section 2.2) that define the desired future state of emergency communications. DHS then identified the emergency communications **Capabilities Needed** (Section 2.3) for the emergency response community to achieve the desired future state.

1.3.2 Developing a Strategy to Achieve the Future State

Based on the capabilities needed for the emergency response community to achieve the desired future state, DHS developed seven **Objectives** (Section 3). Although all seven objectives were designed to support the realization of the long-term vision, execution of all initiatives and achievement of national milestones are not necessarily prerequisites for achieving the three goals. DHS will continue to work with its stakeholders on the implementation of the NECP initiatives and the attainment of these near-term goals. For each objective, DHS developed **Supporting Initiatives** (Section 3), which are intended to drive outcomes toward the future state. In crafting each initiative, DHS identified both current emergency communications activities that affect the initiative and key gaps that drive action in the initiative area. Finally, DHS identified **Recommended National Milestones** (Section 3) that detail the timeline and outcomes of each initiative.

1.3.3 Implementing and Measuring Achievement of the Future State

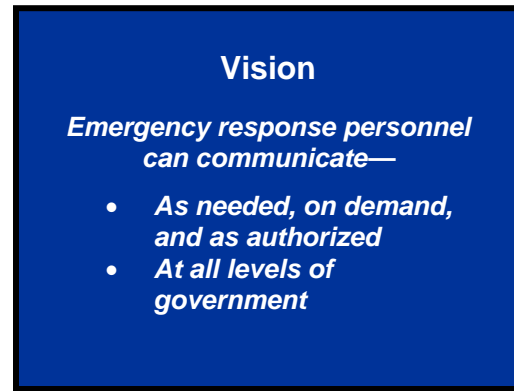
In the final step, DHS provides guidance for implementing the NECP and recommendations for measuring success (Section 4). These recommendations are based on the legislative requirements for the NECP as outlined in Appendix 1.

2. Defining the Future State of Emergency Communications

The NECP outlines the future vision of emergency communications over the next five years. In doing so, it establishes tangible goals by which success can be measured.

2.1 Vision

The NECP vision is to ensure operability, interoperability, and continuity of communications to allow emergency responders to communicate as needed, on demand, and as authorized at all levels of government and across all disciplines.



2.2 Goals

To work toward this desired future state, DHS defined a series of goals that establish a minimum level of interoperable communications and dates by which Federal, State, local, and tribal agencies are expected to achieve that minimum level. Although not comprehensive, these goals provide an initial set of operational targets which OEC will expand further through a process that engages Federal, State, and local governments, the private sector, and emergency responders. Section 4.2 outlines how OEC plans to measure the nationwide achievement of these goals.

If emergency responders train regularly and use emergency communications solutions daily, they will be able to use emergency communications more effectively during major incidents. Therefore, the first two goals focus on day-to-day response capabilities that will inherently enhance emergency response capabilities.

Response-level emergency communications is the capacity of individuals with primary operational leadership responsibility to manage resources and make timely decisions during an incident involving multiple agencies, without technical or procedural communications impediments.⁹ In addition to communicating with first-level subordinates in the field, an Operations Section Chief should be able to communicate up the management chain to the incident command level (i.e., between the Operations Section Chief and Incident Command).¹⁰ During the course of incident response, Incident Command/Unified Command may move off-scene, which may require establishing communications between Incident Command and off-scene Emergency Operations Centers (EOC), dispatch centers, and other support groups.

⁹ As defined in the National Incident Command System 200, Unit 2: *Leadership and Management*.

¹⁰ As defined in the National Incident Management System, FEMA 501/Draft August 2007, p.47.

NECP Goals

Goal 1—By 2010, 90 percent of all high-risk urban areas designated within the Urban Areas Security Initiative (UASI)¹¹ are able to demonstrate response-level emergency communications within one hour for routine events¹² involving multiple jurisdictions¹³ and agencies.

Goal 2—By 2011, 75 percent of non-UASI jurisdictions are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.

Goal 3—By 2013, 75 percent of all jurisdictions are able to demonstrate response-level emergency communications within three hours, in the event of a significant event¹⁴ as outlined in national planning scenarios.

The NECP identifies seven key objectives to move the Nation toward its overall vision. Although all seven objectives are important to achieving all three goals, Objective 7 focuses primarily on enhancing the ability to communicate during a significant event as outlined in Goal 3. Further, through OEC and the Federal Emergency Management Agency's (FEMA) Regional Emergency Communications Coordination Working Groups (RECCWG), DHS will collaborate with State homeland security directors and State interoperability coordinators to develop appropriate methodologies to measure progress toward these goals in each State.

2.3 Capabilities Needed

Leveraging the findings from various sources of information, including analyses, from Federal, State, local, and tribal governments on emergency communications, DHS completed a comprehensive examination of emergency communications capabilities across all levels of government and some private sector entities.¹⁵ (A **capability** enables the accomplishment of a mission or task.) Exhibit 4 summarizes the range of emergency communications capabilities needed by emergency responders and maps those to the **SAFECOM Interoperability Continuum**.¹⁶

¹¹ As identified in the FY08 Homeland Security Grant Program or on the FEMA Grants website:

http://www.fema.gov/pdf/government/grant/uasi/fy08_uasi_guidance.pdf.

¹² Routine events—During routine events, the emphasis for response-level emergency communications is on operability and interoperability. These types of events are further delineated in the Usage element of the SAFECOM Interoperability Continuum as planned events, localized emergency incidents, regional incident management (interstate or intrastate), and daily use throughout the region. See Appendix 5 for a further description of the SAFECOM Interoperability Continuum.

¹³ Jurisdiction—A geographical, political, or system boundary as defined by each individual State.

¹⁴ Significant events—During significant events, the emphasis for response-level emergency communications is on interoperability and continuity of communications. Homeland Security Presidential Directive 8: National Preparedness (HSPD-8) sets forth 15 National Planning Scenarios, highlighting a plausible range of significant events such as terrorist attacks, major disasters, and other emergencies that pose the greatest risks to the Nation. Any of these 15 scenarios should be considered when planning for a significant event during which all major emergency communications infrastructure is destroyed.

¹⁵ The *National Communications Capabilities Report*, 2008.

¹⁶ SAFECOM's Interoperability Continuum was designed to help the emergency response community and Federal, State, local, and tribal policymakers address critical elements for success as they plan and implement interoperability solutions: <http://www.safecomprogram.gov/SAFECOM/tools/continuum/default.html>.

These identified capabilities serve as the foundation for the NECP priority objectives, initiatives, and recommended national milestones set forth in Section 3.

Exhibit 4: Emergency Communications Capabilities Needed to Achieve Future State

Lanes of the SAFECOM Interoperability Continuum	Capabilities Needed
<i>Governance</i>	<ul style="list-style-type: none"> • Strong government leadership • Formal, thorough, and inclusive interagency governance structures • Clear lines of communication and decision-making • Strategic planning processes
<i>Standard Operating Procedures (SOP)</i>	<ul style="list-style-type: none"> • Standardized and uniform emergency responder interaction during emergency response operations • Standardized use and application of interoperable emergency communications terminology, solutions, and backup systems
<i>Technology</i>	<ul style="list-style-type: none"> • Voice and data standards that pertain to real-time situational information exchange and reports for emergency responders before, during, and after response • Uniform model and standard for emergency data information exchange • Testing and evaluation of emergency communications technology to help agencies make informed decisions about technology • Emergency response communications technology based on voluntary consensus standards • Basic level of communications systems operability
<i>Training and Exercises</i>	<ul style="list-style-type: none"> • Uniform, standardized performance objectives to measure effectiveness of emergency responders communications capabilities • Emergency response providers who are fully knowledgeable, trained, and exercised on the use and application of day-to-day and backup communications equipment, systems, and operations irrespective of the extent of the emergency response
<i>Usage</i>	<ul style="list-style-type: none"> • Adequate resources and planning to cover not only initial system and equipment investment but also the entire life cycle (operations, exercising, and maintenance) • Broad regional (interstate and intrastate) coordination in technology investment and procurement planning

3. Achieving the Future State of Emergency Communications

This section describes the strategy for achieving the NECP's future state for emergency communications and for meeting the overall goals identified in Section 2. Specifically, this section discusses in detail the seven **Objectives** that delineate a comprehensive assessment of the capabilities needed to close existing gaps and achieve the long-term vision. In the near-term, DHS will continue to work with its stakeholders on implementing the NECP initiatives and attaining near-term goals. As previously defined, the three critical elements of emergency communications are operability, interoperability, and continuity of communications. Progress toward achieving each of the seven objectives is essential in realizing improvements in all three of these primary elements of emergency communications.¹⁷ In addition, this section defines **Supporting Initiatives** for each objective, with a focus on driving outcomes toward the future state. Each initiative identifies current emergency communications activities and key gaps. To implement these initiatives, there are **Recommended National Milestones** to define the timelines and outcomes.

3.1 Objectives, Initiatives, and Milestones

The objectives and initiatives provide national guidance to Federal, State, local, and tribal agencies to implement key activities to improve emergency communications. Milestones provide key checkpoints to monitor NECP implementation. The proposed timelines for completing these initiatives began when the NECP was delivered to Congress on July 31, 2008. OEC will then coordinate development of implementation strategies with partner organizations at all levels of government, private sector organizations, and non-governmental associations. The NECP identifies the following objectives to improve emergency communications for Federal, State, local, and tribal emergency responders:

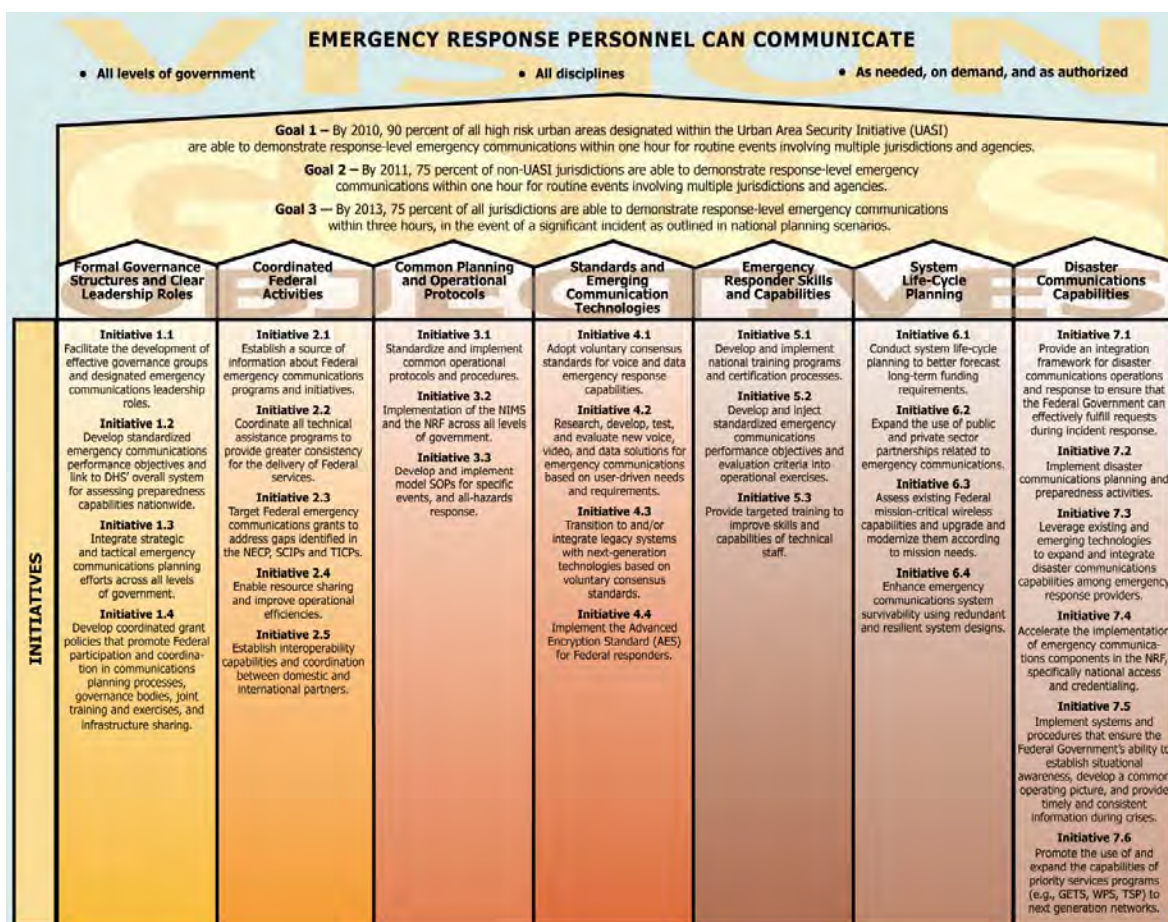
1. Formal decisionmaking structures and clearly defined leadership roles coordinate emergency communications capabilities.
2. Federal emergency communications programs and initiatives are collaborative across agencies and aligned to achieve national goals.
3. Emergency responders employ common planning and operational protocols to effectively use their resources and personnel.
4. Emerging technologies are integrated with current emergency communications capabilities through standards implementation, research and development, and testing and evaluation.
5. Emergency responders have shared approaches to training and exercises, improved technical expertise, and enhanced response capabilities.
6. All levels of government drive long-term advancements in emergency communications through integrated strategic planning procedures, appropriate resource allocations, and public-private partnerships.
7. The Nation has integrated preparedness, mitigation, response, and recovery capabilities to communicate during significant events.

¹⁷ Note that no single objective is discretely linked to any one of the three elements (i.e., operability, interoperability, or continuity of communications). Rather, progress in any objective area will result in improvements in each of the three emergency communications components.

Substantial cooperation and collaboration across the stakeholder community are necessary to achieve all of the milestones in each objective. The supporting initiatives and recommended national milestones represent the DHS' position on actions that must occur and establish completion dates to meet NECP goals. DHS continues to work with stakeholders at all levels of government to identify and verify ownership roles to drive full participation and implementation of this Plan.

For some of the milestones, specific leadership and ownership roles are defined based on associated mission areas, current activities, existing authorities, and feedback from organizations during NECP development. In many cases, specific leadership roles to achieve the milestones are not and presently cannot be defined. Although DHS has been mandated by Congress to develop the NECP and coordinate its implementation, DHS has limited authority to compel responsibilities and leadership roles—and the associated expenditure of resources—for external organizations. To implement the NECP, OEC will collaborate with its partner organizations to develop strategies that guide achievement of the objectives, initiatives, and milestones. Exhibit 4 illustrates these integrated elements of the NECP and depicts: A vision of the future state and goals that support achievement of the vision; specific objectives to meet these goals; and supporting initiatives with national milestones that define the outcomes and timelines required.

Exhibit 4: The NECP Roadmap



Objective 1: Formal Governance Structures and Clear Leadership Roles

Formal decision-making structures and clearly defined leadership roles coordinate emergency communications capabilities.

More than 50,000 independent agencies across the Nation routinely use emergency communications. Each of these agencies is governed by the laws of its respective jurisdiction or area of responsibility. No single entity is, or can be, in charge of the Nation's entire emergency communications infrastructure. In such an environment, collaborative planning among all levels of government is critical for ensuring effective and fully coordinated preparedness and response. Formal governance structures and leadership are needed to manage these complex systems of people, organizations, and technologies.¹⁸

*Current Emergency Communications Activities:*¹⁹

- National-level policies identify roles, responsibilities, and coordinating structures for incident management (e.g., National Response Framework [NRF] and its Emergency Support Function #2 [ESF#2], National Incident Management System [NIMS] Joint Field Office Activation and Operations—Interagency Integrated Standard Operating Procedure Annex E).
- The Statewide Communication Interoperability Plan ([SCIP Guidebook](#)) provides guidance on establishing a structure for governing statewide communications interoperability planning efforts. All 56 States and territories now have SCIPs.
- The ECPC establishes a governance and decision-making structure for strategic coordination of interdepartmental emergency communications at the Federal level.
- FEMA leads the integration of tactical Federal emergency communications during disasters and is developing requirements and an associated Disaster Emergency Communications (DEC) Integration Framework for fulfilling emergency communications needs during disasters.
- Decision-making bodies at the State, regional, and local levels coordinate emergency communications issues (e.g., RECCWG, statewide interoperability coordinators and executive committees, local communications committees).²⁰

¹⁸ Most emergencies occur at the local level and are managed by local incident commanders. To best support the local incident commander, Federal and State agencies must ensure the coordination of their interoperability efforts with local agencies. This perspective is in agreement with the ERC's guiding principles, *SAFECOM Emergency Response Council, Agreements on a Nationwide Plan for Interoperable Communications, Summer 2007*.

¹⁹ A subset of relevant and current emergency communication activities has been identified for each objective in the NECP; these subsets are not meant to be comprehensive, but represent examples of stakeholder input collected during NECP development. Many additional activities are planned and underway across all levels of government.

²⁰ As defined in Section 1805 of the Department of Homeland Security Act of 2007, RECCWGs assess emergency communications capabilities within their respective regions, facilitate disaster preparedness through the promotion of multijurisdictional and multiagency emergency communications networks, and ensure activities are coordinated with all emergency communications stakeholders within the RECCWG's associated FEMA region. The FEMA Regional Administrator oversees the RECCWG and its activities, and the RECCWG is required to report annually (at a minimum) to the FEMA Regional Administrator. The RECCWG advises on all aspects of emergency communications in its respective Region and incorporates input from emergency communications stakeholders and representatives from all levels of government as well as from nongovernmental and private sector agencies.

- OEC is developing a governance sustainability and SCIP implementation methodology to provide guidance and share lessons learned in creating and sustaining effective statewide communications interoperability governance structures for SCIP implementation.

Key Gaps and Obstacles Driving Action:

- In many cases, emergency response agencies are unaware of (or have yet to adopt and integrate) national-level policies that define roles, responsibilities, and coordinating structures for emergency communications.
- State Interoperability Executive Committees (SIEC) or their equivalents do not have uniform structures, they typically act in an ad hoc capacity, and they often lack inclusive membership.
- The Nation does not have an objective, standardized framework to identify and assess emergency communications capabilities nationwide. Thus, it is difficult for jurisdictions to invest in building and maintaining appropriate levels of operability, interoperability, and continuity of communications.
- Emergency communications strategic planning efforts vary in scope and often do not address the operability and interoperability concerns of all stakeholders.
- Many agencies often do not consider communications planning to be a priority and therefore do not allocate resources for participation in planning activities.
- There is a need for greater Federal department and agency participation in State, regional, and local governance and planning processes.
- Many States do not have full-time statewide interoperability coordinators, or equivalent positions, to focus on the activities needed to drive change.

Supporting Initiatives and Milestones to Address Key Gaps:

- **Initiative 1.1: Facilitate the development of effective governance groups and designated emergency communications leadership roles.** Uniform criteria and best practices for governance and emergency communications leadership across the Nation will better equip emergency response agencies to make informed decisions that meet the needs of their communities. Establishing effective leadership positions and representative governance groups nationwide will standardize decision-making and enhance the ability of emergency response agencies to share information and respond to incidents.

Recommended National Milestones:

- Within 12 months, DHS will establish a central repository of model formal agreements (i.e., Memorandums of Agreement [MOA], Memorandums of Understanding [MOU], and Mission Assignments) and information that will enhance interstate and intrastate coordination.²¹
- Within 12 months, all States and territories should establish full-time statewide interoperability coordinators or equivalent positions.

²¹ This repository is envisioned as a component of the ECPC clearinghouse function. Please refer to Initiative 2.1 for additional information and activities regarding the ECPC clearinghouse.

- Within 12 months, DHS will conduct a National Emergency Communications workshop to provide an opportunity for RECCWG participants, statewide emergency communications coordinators, and other interested parties to collaborate with one another and with Federal representatives from the ECPC and FPIC.
 - Within 12 months, RECCWGs are fully established as a primary link for disaster emergency communications among all levels of government at the FEMA regional level, sharing information, identifying common problems, and coordinating multistate operable and interoperable emergency response initiatives and plans among Federal, State, local, and tribal agencies.²²
 - Within 12 months, SIECs (or their equivalents) in all 56 States and territories should incorporate the recommended membership as outlined in the [SCIP Guidebook](#) and should be established via legislation or executive order by an individual State's governor.
 - Within 18 months, DHS will publish uniform criteria and best practices for establishing governance groups and emergency communications leadership roles across the Nation.
- **Initiative 1.2: Develop standardized emergency communications performance objectives and link to DHS' overall system for assessing preparedness capabilities nationwide.** DHS will collaborate with Federal, regional, State,²³ local, and tribal governments and organizations, as well as with the private sector, to develop a more comprehensive and targeted set of evaluation criteria for defining and measuring communications requirements across the Nation. To prevent duplicative reporting requirements for its stakeholders, DHS will ensure these assessment efforts leverage existing reporting requirements (e.g., for SCIPs, Tactical Interoperable Communications Plans [TICPs], and State Preparedness Reports) and grant program applications (e.g., for the Interoperable Emergency Communications Grant Program [IECGP] and the Homeland Security Grant Program [HSGP]). Evaluation criteria will be based on the approach being followed in DHS' implementation plans for the National Preparedness Guidelines/Target Capabilities List (TCL).²⁴

²² FEMA organizes the United States into 10 FEMA regions. Each FEMA region has its own Regional Headquarters led by a Regional Administrator. FEMA regions are responsible for working in partnership with emergency management agencies from each state within the respective region to prepare for, respond to, and recover from disasters. FEMA regions and their Regional Administrators will be leveraged to provide oversight, implementation, and execution for their respective RECCWGs.

²³ This collaboration would include State homeland security advisors and statewide interoperability coordinators.

²⁴ DHS is currently developing TCL implementation plans for animal health, EOC management, intelligence, onsite incident management, mass transit protection, and weapons of mass destruction (WMD)/hazardous material (hazmat) rescue and decontamination. Communication requirements will be based on the concepts and principles outlined in the NECP and in the baseline principles provided in the NIMS (e.g., common operating picture; interoperability; reliability, scalability and portability; and resiliency and redundancy). These requirements will be based on the command requirements for response-level emergency communications as defined in the NECP, and will also include the full range of communications requirements for all of the standardized types of communications (e.g., strategic, tactical, support, public address) identified in the NIMS.

Recommended National Milestones:

- Within 12 months, DHS will develop a standardized framework for identifying and assessing emergency communications capabilities nationwide.
 - Within 18 months, DHS' emergency communications capability framework, in preparation for release, will be reviewed during a series of technical working group meetings with stakeholders from the emergency response community.
 - Within 24 months, the emergency communications capability framework will be incorporated as the communications and information management capability in the DHS/FEMA National Preparedness Guidelines/TCL, which will serve as a basis for future grant policies.
- **Initiative 1.3: Integrate strategic and tactical emergency communications planning efforts across all levels of government.** Tactical and strategic coordination will eliminate unnecessary duplication of effort and maximize interagency synchronization, bringing together tactical response and strategic planning.

Recommended National Milestones:

- Within 12 months, DHS will make available an effective communications-asset management tool containing security and privacy controls to allow for nationwide intergovernmental use.
 - Within 12 months, tactical planning among Federal, State, local, and tribal governments occurs at the regional interstate level.
- **Initiative 1.4: Develop coordinated grant policies that promote Federal participation and coordination in communications planning processes, governance bodies, joint training and exercises, and infrastructure sharing.** The largest investment category of DHS grant funds is interoperable communications. Federal acquisition, deployment, and operating funds supporting Federal mission-critical communication systems often cannot be used to support State and local communication needs (when otherwise appropriate). These limitations on the use of these funds can inhibit the realization of the goals of coordination and interoperability, as systems are developed, deployed, and maintained.

Recommended National Milestones:

- Within 12 months, DHS fiscal year (FY) 2009 grant policies provides guidance on how to best support national interoperability needs through the promotion of shared infrastructure, cooperative planning, and coordinated governance.

- Within 12 months, best practices for sharing infrastructure, addressing spectrum issues, and developing agreements among Federal, State, and local emergency response communicators are promoted through DHS technical assistance programs, in accordance with applicable laws.

Objective 2: Coordinated Federal Activities

Federal emergency communications programs and initiatives are collaborative across agencies and aligned to achieve national goals.

Federal departments and agencies rely on emergency communications capabilities to support mission-critical operations (e.g., law enforcement, disaster response, homeland security). Traditionally, individual Federal departments and agencies have not considered the benefits of planning and implementing emergency communications systems in conjunction with other Federal departments and agencies, or with State and local agencies. It is critical that Federal programs and initiatives—including grant programs—responsible for managing and providing emergency communications, are coordinated to minimize duplication, maximize Federal investments, and ensure interoperability.

Current Emergency Communications Activities:

- The ECPC has been established to serve as the Federal focal point for interoperable emergency communications. An ECPC clearinghouse is being designed as a central repository for Federal, State, local, and tribal governments to publish and share tactics, techniques, practices, programs, and policies that enhance interoperability for emergency communications.
- RECCWGs are being established to provide regional coordination points for emergency communications preparedness, response, and recovery for Federal, State, local, and tribal governments within each FEMA region.
- Federal, State, and local agencies are both independently and jointly upgrading and modernizing their tactical communications systems. There are several Federal grant programs (e.g., the HSGP and the Public Safety Interoperable Communications [PSIC] Grant Program) that State, local, and tribal entities can use to enhance their emergency communications capabilities.
- DHS is establishing the IECGP to support projects that focus on improving operable and interoperable emergency communications for State, local, and tribal agencies and for international border agencies. IECGP guidance is being developed to close gaps associated with governance, planning, training, and exercises and currently focuses grant funds on initiatives that are not focused on technology.
- OEC's Interoperable Communications Technical Assistance Program (ICTAP) helps to enhance interoperable emergency communications among Federal, State, local, and tribal governments by providing assistance on governance, SOPs, technology, training and exercises, usage, and engineering issues. The ICTAP leverages and works with other Federal, State, and local interoperability efforts whenever possible to enhance the overall capacity for agencies and individuals to communicate with one another.

Key Gaps and Obstacles Driving Action:

- Information on Federal emergency communications programs, activities, and standards is not consistently or adequately shared with State and local agencies.
- Federal emergency responders are not integrated into existing State and local networks because of capacity, frequency coordination, and channel congestion issues.
- Federal grant programs for interoperable emergency communications are not targeting gaps in a consistent and coordinated manner.
- There is a lack of overall Federal coordination at the regional level and participation in regional UASI and statewide planning activities (e.g., SIEC).
- Regulatory and legal issues act as barriers to the further use of shared capabilities across all levels of government.

Supporting Initiatives and Milestones to Address Key Gaps:

- **Initiative 2.1: Establish a source of information about Federal emergency communications programs and initiatives.** There are a number of Federal programs and initiatives focused on emergency communications. DHS will establish a focal point for coordinating intergovernmental emergency communications to help the Federal Government identify duplicative efforts and achieve greater economies of scale.

Recommended National Milestones:

- Within 12 months, Federal departments and agencies leverage the ECPC as the central coordinating body for providing Federal input into, and comments on, Federal emergency communications projects, plans, and reports.
 - Within 12 months and annually thereafter, the ECPC submits a strategic assessment to Congress, detailing progress to date, the remaining obstacles to interoperable emergency communications, and Federal coordination efforts.
 - Within 12 months, DHS establishes a uniform method for coordination and information sharing between ECPC and the RECCWGs.
 - Within 18 months, the ECPC web-based clearinghouse portal commences operation, with strong consideration given to leveraging existing portals, such as the Homeland Security Information Network (HSIN), DHS ONE-Net, and DHS Interactive.
 - Within 24 months, DHS establishes targeted outreach and training activities to ensure that stakeholders across the Nation are aware of the availability of ECPC clearinghouse resources.
- **Initiative 2.2: Coordinate all technical assistance programs to provide greater consistency for the delivery of Federal services.** Coordinated and uniform technical assistance will improve the reliability of communications

systems and operator expertise. Technical assistance can be targeted to address gaps identified in SCIPs and the priorities outlined in the NECP.

Recommended National Milestones:

- Within 6 months, through the ECPC, a catalog of current technical assistance programs will be established, to both ensure the awareness of available technical assistance and reduce duplication.
 - Within 6 months, DHS establishes a focal point for consistent and comprehensive technical assistance and guidance for emergency communications planning with Federal, State, local, and tribal agencies.
 - Within 12 months, Federal agencies establish a common methodology across all Federal operability and interoperability technical assistance programs and will train the personnel who provide technical assistance on the use of this methodology.
 - Within 18 months, DHS establishes a consistent and coordinated method for States and localities to request Federal technical assistance.
- **Initiative 2.3: Target Federal emergency communications grants to address gaps identified in the NECP, SCIPs, and TICPs.** Targeted Federal grants will allow emergency response agencies to address communications gaps and coordinate planning efforts. Federal grant funding represents only a small fraction of overall emergency response emergency communications investment. Nonetheless, such funding is a key tool by which State and local emergency response agencies can address national emergency communication priorities.

Recommended National Milestones:

- Within 12 months, all IECGP investments are coordinated with the statewide interoperability coordinator and SIEC, or its equivalent, to support State administrative agency investments, including filling the gaps identified in the NECP and SCIPs.
 - Within 12 months, DHS grant policies are developed to encourage regional operable and interoperable solutions, including shared solutions, and to prioritize cost-effective measures and multi-applicant investments.
 - Within 12 months, the ECPC stands up a working group to coordinate grant priorities across Federal grant programs.
- **Initiative 2.4: Enable resource sharing and improve operational efficiencies.** Most government-owned wireless infrastructure that supports emergency response exists at the State and local levels. Further, many State and local agencies have modernized and expanded their systems through mechanisms such as Federal grant programs (e.g., the HSGP and the PSIC Grant Program), or they are currently in the process of doing so. By working with State and local agencies, Federal agencies can benefit from these improvements by leveraging both existing and planned infrastructure to improve operability and interoperability. In addition, there are a number of Federal-level programs and

initiatives involving the deployment of communications infrastructure, which present opportunities for resource and infrastructure sharing (e.g., spectrum, Radio Frequency [RF] sites). Federal agencies should work to better understand existing and planned programs, initiatives, and infrastructure across all levels of government to improve coordination, maximize investments, and more quickly field capabilities.

Recommended National Milestones:

- Within 6 months, DHS conducts an assessment of shared regional/State systems to determine the potential for resource sharing among Federal, State, local, and tribal agencies.
 - Within 12 months, DHS prioritizes sharing opportunities, based on Federal emergency communications requirements.
 - Within 24 months, DHS establishes partnerships between Federal, State, local, and tribal agencies, as appropriate.
- **Initiative 2.5: Establish interoperability capabilities and coordination between domestic and international partners.** Emergencies occurring near the Mexican and Canadian borders frequently require a bi-national response, necessitating interoperability with international partners. These countries often have different technical configurations and regulatory statutes than the United States. Coordination is essential to ensure that domestic and international legal and regulatory requirements are followed.

Recommended National Milestones:

- Within 6 months, and annually thereafter, hold plenary meetings of the United States-Mexico Joint Commission on Resolution of Radio Interference to address identified interference cases between the United States and Mexico.
- Within 12 months, DHS establishes best practices for emergency communications coordination with international partners (i.e., cross border interoperability coordination with Mexico and Canada).
- Within 24 months, DHS establishes demonstration projects between Federal, State, local, and tribal agencies, and international partners, to improve interoperability in border areas that are at risk for large-scale incidents (natural or man-made) requiring international responses (including illegal border crossings or smuggling activities that result from an incident).

Objective 3: Common Planning and Operational Protocols

Emergency responders employ common planning and operational protocols to effectively use their resources and personnel.

Agencies often create SOPs to meet their unique emergency communications requirements. In recent years, with support from the Federal Government, emergency responders have developed standards for interoperability channel naming, the use of existing nationwide interoperability frequencies, and the use of plain language. NIMS represents an initial step in establishing national consistency for how agencies and jurisdictions define their operations; however, additional steps are required to continue streamlining response procedures.

Current Emergency Communications Activities:

- National-level preparedness and incident management doctrines (e.g., NRF, NIMS, Joint Field Office Activation and Operations Interagency Integrated Standard Operating Procedures, TCLs) are in various stages of development; these exist to define common principles, roles, structures, and target capabilities for incident response.
- Strategic and tactical interoperable emergency communications planning has begun at the State and local levels (e.g., TICPs, SCIPs, FEMA, State and regional emergency communications planning).
- Common nomenclature initiatives for interoperability channels (e.g., NPSTC Channel Naming Report) are underway.
- FEMA has developed a DEC Integration Framework and continues to support both government and nongovernmental organizations in developing plans and response frameworks and defining roles and responsibilities.
- FEMA's NIMS Integration Center is developing the National Emergency Responder Credentialing System (NERCS).
- Federal grant guidance (e.g., FY 2008 SAFECOM grant guidance; FY 2008 IECGP grant guidance) exists for migrating current radio practices to plain language standards.
- The Office for Interoperability and Compatibility (OIC), in coordination with OEC, is developing an SOP Development Guide, a Shared Channel Guide v2.0, and a brochure on plain language.
- DHS recently issued Federal Continuity Directive-1, which establishes continuity planning guidelines for Federal departments and agencies.
- The Office of Science and Technology Policy issued the National Communications System Directive (NCSD) 3-10, *Minimum Requirements for Continuity Communications Capabilities* as planning direction for communications capabilities that support continuity of operations.

Key Gaps and Obstacles Driving Action:

- There are inconsistencies in the use of plain language, the interoperability channel naming conventions, the interoperability frequencies, and SOPs.

- Nationwide adoption and usage of NIMS, NRF, and NERCS has been slow because some users are often unfamiliar with the direction and intent of these policies.
- Inconsistent use of the Federal Communications Commission (FCC)-designated national interoperability channels has limited the effectiveness of this interoperability solution for emergency response communications systems operating in the same frequency band.

Supporting Initiatives and Milestones to Address Key Gaps:

- **Initiative 3.1: Standardize and implement common operational protocols and procedures.** A national adoption of plain-language radio practices and uniform common channel naming, along with the programming and use of existing national interoperability channels, will allow agencies across all disciplines to effectively share information on demand and in real time. Using common operational protocols and procedures avoids the confusion that using disparate coded language systems and various tactical interoperability frequencies can create. Use of the existing nationwide interoperability channels with common naming will immediately address interoperability requirements for agencies operating in the same frequency band.²⁵

Recommended National Milestones:

- Within 6 months, OEC develops plain-language guidance in concert with State and local governments to address the unique needs of agencies/regions and disciplines across the Nation.
- Within 6 months, American National Standards Institute (ANSI) certifies, and emergency response accreditation organizations accept, the NPSTC Channel Naming Guide as the national standard for FCC-designated nationwide interoperability channels.
- Within 9 months, the National Integration Center's (NIC) Incident Management Systems Integration Division (IMSID) promotes plain-language standards and associated guidance.
- Within 12 months, grant policies for Federal programs that support emergency communications are coordinated, providing incentives for States to include plans to eliminate coded substitutions throughout the Incident Command System (ICS).
- Within 12 months, Federal agencies identify a uniform naming system for the National Telecommunications and Information Administration's (NTIA) designated nationwide interoperability channels, and this naming system is integrated into the NPSTC Guide.

²⁵ The National Telecommunications and Information Administration (NTIA) and members of the Interdepartment Radio Advisory Committee (IRAC), with support from the FCC, revised the *NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management*. The NTIA amended the *Conditions for Use* and eliminated the requirement to establish an MOU between non-Federal and Federal entities on the use of the law enforcement (LE) and IR channels. However, the new conditions do require the non-Federal entity to obtain a license and include a point of contact in the license application it submits to the FCC for use of the LE/IR channels.

- Within 18 months, DHS develops training and technical assistance programs for the National Interoperability Field Operations Guide (NIFOG);²⁶ programs an appropriate set of frequency-band-specific nationwide interoperability channels into all existing emergency responder radios;²⁷ and preprograms an appropriate set of frequency-band-specific nationwide interoperability channels into emergency response radios that are manufactured or purchased through Federal funding as a standard requirement.
 - Within 24 months, all SCIPs reflect plans to eliminate coded substitutions throughout the ICS, and agencies incorporate the use of existing nationwide interoperability channels into SOPs, training, and exercises at the Federal, State, regional, local, and tribal levels.
- **Initiative 3.2: Implementation of the NIMS and the NRF across all levels of government.** Emergency response agencies across all levels of government should adopt and implement national-level policies and guidance to ensure a common approach to incident management and communications support. Implementation of these policies will establish clearly defined communications roles and responsibilities and enable integration of all communications elements as the ICS structure expands from the incident level to the national level.

Recommended National Milestones:

- Within 12 months, all Federal, State, local, and tribal emergency response providers within UASI jurisdictions have implemented the Communications and Information Management section of the NIMS.
- **Initiative 3.3: Develop and implement model SOPs for specified events and all-hazards response.** SOPs address the range of informal and formal practices and procedures that guide emergency responder interactions and the use of interoperable emergency communications solutions. Agencies should develop, coordinate, and share best practices and procedures that encompass both operational and technical components. Command and control protocols should be NIMS-compliant and incorporate the ICS as an operational guide. Procedures for the activation, deployment, and deactivation of technical resources should be included, as well as roles and responsibilities for the operation, management, recovery, and continuity of equipment and infrastructure during an incident. Agencies should identify procedures used to trigger and implement backup communications solutions if primary systems and solutions should become unavailable. As the scale of an incident expands, procedures for the integration of

²⁶ NIFOG is a collection of technical reference material to be used by radio technicians who are responsible for the radios to be used and applied during disaster response. NIFOG includes information from the National Interoperability Frequency Guide (NIFG), instructions on the use of NIFG, and other reference material. NIFOG is formatted to be a pocket-sized guide that is easy for radio technicians to carry.

²⁷ Milestones in this area refer to the programming of an “appropriate set” of interoperability channels. This language is used in recognition that most radios used by emergency responders do not have the capacity to hold all of the national interoperability channels in addition to their required operational channels. Some radio channels are discipline-specific and are inappropriate to program in radios of other disciplines.

communications solutions become increasingly critical. Agencies must institute processes by which policies, practices, and procedures are regularly developed and reviewed for consistency across agencies.

Recommended National Milestones:

- Within 6 months, DHS identifies and refines model SOPs for tactical communications and develops associated SOP training for emergency responders.
- Within 12 months, DHS identifies and refines model SOPs for emergency communications during specific types of incidents and all-hazards response (beyond tactical communications).
- Within 18 months, DHS collaborates with partner emergency communications organizations to disseminate model SOPs and provides SOP training by mission type, incident type, and all-hazards response to emergency response agencies. DHS will provide these SOPs and training on a regional basis.

Objective 4: Standards and Emerging Communication Technologies

Emerging technologies are integrated with current emergency communications capabilities through standards implementation, research and development, and testing and evaluation.

The emergency response community recognizes that no single technological solution can address all emergency communications challenges or meet the needs of all agencies. The proprietary nature of many communications technologies creates an ongoing challenge to system connectivity and establishing interoperability among them. The presence of wireless data networks, Internet Protocol (IP)-based mobile communications devices, and location-based commercial services, however, are creating potential opportunities to enhance command and control and situational awareness. Accelerating the development of standards for existing and emerging technologies can address these technology challenges, and therefore improve communications during response operations for both routine and significant events.

Current Emergency Communications Activities:

- The Association of Public-Safety Communications Officials (APCO), the National Association of State Technology Directors (NASTD), and the Telecommunications Industry Association (TIA) are developing a set of communications standards—the Project 25 (P25) suite of standards—for digital LMR. This effort is being undertaken in cooperation with the emergency response community, the private sector, and the Federal Government.
- The standards for two of the eight P25 interfaces have been developed.
- OIC is establishing a P25 Compliance Assessment Program (CAP) to assess manufacturers' equipment for compliance with P25 standards.
- Major documents on Common Air Interface (CAI) standards have been completed and products that implement CAI standards are currently being fielded; other major P25 standards documents are rapidly being developed.
- Standards for data exchange are in development to improve information-sharing capabilities among disparate emergency response software applications (e.g., Emergency Data Exchange Language [EDXL] standards including the Common Alerting Protocol, Distribution Element [DE], Hospital Availability Exchange [HAVE], Resource Messaging [RM], and the National Information Exchange Model [NIEM]).
- Broadband initiatives and standards development include the P25 Interface Committee's (APIC) Broadband Task Group (BBTG), Project MESA, and the NPSTC Broadband Working Group.
- Research and development (R&D) and testing and evaluation initiatives are driven by OIC (e.g., Voice over Internet Protocol [VoIP], Vocoder Testing, Multi-Band Radio, and Radio over Wireless Broadband [ROW-B]) and by the Department of Defense (DoD) (e.g., Joint Tactical Radio System [JTRS] and Joint Interoperability Test Command).
- The President's Spectrum Policy Initiative focuses on identifying methods that use emerging technologies, such as cognitive radio, to increase the efficiency and effectiveness of spectrum usage.

- Several States (e.g., Arizona, California, and Texas) are developing statewide “systems of systems” that leverage emerging technologies to establish interoperability among different levels of government and span frequency bands.
- FEMA, following its DEC Integration Framework end-state architecture, is developing standardized deployable emergency communications capabilities that provide scalable and flexible voice, video, and data services.
- In the ongoing FCC rulemaking proceeding to establish a nationwide broadband emergency response network in the 700 Megahertz (MHz) band, OEC is coordinating with Federal emergency response agencies through the FPIC to ensure that such agencies have access to this broadband network and that Federal interests are represented in network-sharing negotiations with emergency response and commercial licensees.
- The U.S. Department of Justice (DOJ) CommTech Program, with support from OIC, is funding R&D in the areas of cognitive and software-defined radio (SDR) and is providing input to the SDR forum to ensure emergency response needs are met by these technologies.
- DHS’ Science and Technology Directorate’s Command, Control, and Interoperability Division is leading a Common Operating Picture R&D program.
- DOJ and other Federal entities are funding pilot projects to support State, local, and tribal emergency services activities.

Key Gaps and Obstacles Driving Action:

- Personnel responsible for designing or procuring communications systems are sometimes unaware of the status of communications standards.
- The number and diversity of emergency response agencies that are procuring systems increases the complexity and difficulty of developing technologies to meet these user requirements.
- Standards development is hindered by the diverse requirements of independent emergency response organizations and agencies.
- Secure communications interoperability across Federal, State, local, and tribal emergency communications systems are often hindered by the Federal sector’s use of encryption.
- There is insufficient information about testing and assessing emergency response technologies, which makes it difficult for emergency response agencies to make informed procurement decisions about technology for use both now and in the future.
- State and local government agencies do not consistently participate in standards-making bodies and development processes.
- A common view of existing incident conditions and resources is not readily available or easily shared across Federal, State, and local jurisdictions in a way that improves the understanding of the emergency or event

Supporting Initiatives and Milestones to Address Key Gaps:

- **Initiative 4.1: Adopt voluntary consensus standards for voice and data emergency response capabilities.** Voluntary consensus standards will enable

agencies to make informed procurement decisions and to benefit from emerging technologies. Compliance assessment programs provide a documented certification process for communications equipment and programs.

Recommended National Milestones:

- Within 6 months, a P25 CAP is established to test equipment for compliance with approved interfaces.
 - Within 6 months, a specifications profile for VoIP is published and tested using multiple manufacturers' equipment.
 - Within 12 months, DHS publishes the P25 CAP Summary Test Reports and manufacturers' Supplier's Declaration of Compliance (SDoC) for equipment.
 - Within 18 months, DHS makes standards and compliance information available to emergency response agencies to help inform their communications equipment purchases (e.g., the Authorized Equipment List [AEL] and the Standardized Equipment List [SEL]).
 - Within 18 months, DHS establishes compliance strategies for non-land mobile radio emergency communications technologies.
 - Within 24 months, develop standards for the exchange of real-time situational information for emergency responders before, during, and after an incident.
 - Within 36 months, develop voluntary consensus standards for emergency communications data file structures and messaging formats.
- **Initiative 4.2: Research, develop, test, and evaluate new voice, video, and data solutions for emergency communications, based on user-driven needs and requirements.** Used in conjunction with legacy systems, new technologies have the potential to eliminate current technological challenges such as a lack of available frequencies and the use of multiple frequency bands. Aggregating the demands of emergency response agencies during the development of requirements for these emerging technologies will increase the effectiveness of the private sector in developing standardized products and services.

Recommended National Milestones:

- Within 3 months, DHS develops a process for emergency response agencies to collaborate with the private sector to aggregate user requirements.
 - Within 9 months, emergency response agencies identify and prioritize near-term (3–5 years) requirements.
 - Within 24 months, emergency response agencies develop, with the cooperation of private sector and other stakeholders, quality-of-service parameters for the most important near-term requirements.
- **Initiative 4.3: Transition to and/or integrate legacy systems with next-generation technologies based on voluntary consensus standards.** Transitioning to next-generation technologies may offer emergency response

agencies easier-to-use and more functional capabilities, depending on their individual needs. The upcoming FCC narrowbanding deadline calls for non-Federal emergency response agencies operating in frequencies below 512 MHz to transition from 25 kilohertz (kHz) to 12.5 kHz channels by 2013 to ensure spectrum efficiency. Federal grants can facilitate the migration and transition from legacy to approved open architecture and next-generation systems.

Recommended National Milestones:

- Within 12 months, Federal grant policies are developed to encourage the migration to approved interoperable next generation systems.
 - Within 12 months, DHS publishes the results of pilots and evaluations of emerging technologies making this information available to emergency response agencies and the private sector to support their migration planning, standards development, and product development efforts.
 - Within 12 months, DHS publishes information and materials that highlight system migration best practices, lessons learned, and the benefits of new system capabilities.
- **Initiative 4.4: Implement the Advanced Encryption Standard (AES) for Federal responders.** A standard nationwide encryption method will diminish the interoperability challenges faced by Federal responders (who previously used different methods) and will provide guidance to local and State agencies when working with Federal agencies.

Recommended National Milestones:

- Within 18 months, achieve encrypted interoperability between Federal departments and agencies using the AES.
- Within 18 months, publish a uniform standard for the AES for State, local, and tribal emergency responders who decide to use encryption.
- Within 24 months, Federal grant policies are modified to accommodate an AES-encrypted feature for radio equipment used by State, local, and tribal emergency responders.

Objective 5: Emergency Responder Skills and Capabilities

Emergency responders have shared approaches to training and exercises, improved technical expertise, and enhanced response capabilities.

Training and exercises play a vital role in preparedness, readiness, and proficiency in accessing and using communications capabilities during emergency events. Preparedness is essential to ensuring that interoperable emergency communications equipment is well maintained, operational, and ready for deployment. Achieving appropriate levels of readiness and proficiency ensures that personnel can deploy, set up, and use equipment effectively, both on their own and in conjunction with other emergency responders. Conducting training and exercises helps emergency responders understand their roles and be properly prepared to respond to a wide range of emergency events.

Current Emergency Communications Activities:

- Many State and local agencies have adopted NIMS training requirements, which are measured by Federal standards (e.g., NIMS 5-Year Training Plan).
- Incident Type III Communications Unit Leader (COML) training, which standardizes the emergency communications component of incident management, has been finalized. An awareness course that is intended to provide basic-level, communications-specific training to other command unit leaders, is under development.
- There are existing standards and guidelines for national preparedness exercises that help standardize and measure exercise efficiency (e.g., the Homeland Security Exercise and Evaluation Program [HSEEP]).
- Large-scale preparedness exercises (e.g., Top Official [TOPOFF]) are being conducted with participants across levels of government, in addition to some communications-specific exercises (e.g., UASI TICP exercises); additional annual exercises are generally conducted at the State and local levels.
- OEC is developing a planned events methodology to help emergency response officials design and execute interoperable communications plans for planned events.
- OEC is developing a Table Top Exercise Methodology as a training aid to reinforce interoperability practices and procedures for emergency responders.

Key Gaps and Obstacles Driving Action:

- Some emergency response agencies have not yet received NIMS training or have not adopted NIMS policies.
- A national standard for Type III COML training and certification has been developed, but has not yet been rolled out nationwide.
- A training curriculum for Communications Unit Technicians (COMT), Radio Operators (RADO), and other communications-unit positions has not yet been developed.
- Many emergency response agencies have only a limited number of qualified technical staff available to support daily operations and provide surge support for emergency communications.

- Private sector partners have not been consistently involved in training and exercises.
- There are insufficient communications-specific training courses and field exercises available to emergency responders, and there is a lack of coordination with the private sector on training and exercises.

Supporting Initiatives and Milestones to Address Key Gaps:

- **Initiative 5.1: Develop and implement national training programs and certification processes.** Standardized training programs should be established to deliver regular training to all emergency responders who use or manage communications resources. To build knowledge and competency throughout the emergency response community, this training should be conducted within agencies, across disciplines, jurisdictions, and levels of government, and with key private sector organizations. Training programs should be sufficiently comprehensive to address small-scale to large-scale events and to build the capability for coordinating with a full range of emergency response providers during all-hazards scenarios. Specific programs should include training for COMLs, COMTs, and the Federal Emergency Communications Coordinators (FECC). These programs should be evaluated regularly to determine their effectiveness and their impact on performance and proficiency levels, and to ensure that the programs' existing content remains valid, incorporating new content as needed.

Recommended National Milestones:

- Within 12 months, DHS establishes national-level training programs and certification processes for COML, COMT, and FECC personnel.
 - Within 12 months, DHS finalizes and publishes ICS Communications Unit resource definitions (personnel and equipment).
 - Within 12 months, DHS develops a nationwide interoperability channel usage guide and ensures that shared channel training curriculum and courseware are available.
 - Within 18 months, DHS develops and uses standardized training and credentialing for COML and other ICS Communications Unit positions across the Nation.
 - Within 18 months, DHS establishes a certification process for other emergency communications users and providers, including COMT, dispatchers, and emergency response providers.
- **Initiative 5.2: Develop and inject standardized emergency communications performance objectives and evaluation criteria into operational exercises.** Incorporating standardized objectives and evaluation criteria into exercise programs will ensure the consistent evaluation of communications performance. By evaluating communications as part of operational exercises, leadership will gain enhanced awareness and understanding of communications gaps. This understanding will ensure communications needs are prioritized appropriately.

Recommended National Milestones:

- Within 12 months, DHS establishes standardized exercise evaluation criteria based on the emergency communications performance objectives established in the DHS/FEMA Communications and Information Management Capability Framework.
 - Within 18 months, the exercise evaluation criteria are reviewed in preparation for release through technical working group meetings with stakeholders from the emergency response exercise community.
 - Within 24 months, the emergency communications criteria are incorporated into the Exercise Evaluation Guides of the DHS/FEMA HSEEP.
- **Initiative 5.3: Provide targeted training to improve skills and capabilities of technical staff.** Although most technicians receive formal communications training at the start of their careers as well as informal on-the-job training, ongoing or refresher training is not commonly provided, in part because there are not enough qualified subject matter experts. Communications technicians typically are too burdened with daily operations and maintenance activities to engage in formal training campaigns. As a result, users who do not rely on communications equipment for their daily missions might be unfamiliar with the equipment and procedures for its use. Developing training programs for technical staff will increase the number and enhance the expertise of technical and operational resources.

Recommended National Milestones:

- Within 12 months, DHS develops and disseminates training program guidance and curricula for emergency communications technical staff.
- Within 18 months, DHS provides educational and training opportunities to emergency response agencies per requests through technical assistance programs.

Objective 6: System Life-Cycle Planning

All levels of government drive long-term advancements in emergency communications through integrated strategic planning procedures, appropriate resource allocations, and public-private partnerships.

Emergency response providers must upgrade and regularly maintain communications systems and capabilities to ensure effective operation; Federal grants can help meet these needs. However, initial capital investments in capabilities, enabled by grants, often are not accompanied by a plan for long-term sustainability. Grants should allow for expanded support of system upgrades, governance, planning, policies and procedures, and training and exercises. Federal agencies face a similar challenge in identifying sustainable funding mechanisms to upgrade and maintain communications systems. Public and private sector partners have their own core competencies and, thus, increased collaboration will add long-term value to emergency communications.

Current Emergency Communications Activities:

- OEC and OIC published an Interoperability Business Case to help emergency response officials develop a compelling business case for funding ongoing local interoperability efforts.²⁸

Key Gaps and Obstacles Driving Action:

- Emergency communications are not viewed as a priority by many agencies; thus, resources are not allocated for participation in planning activities.
- Communications planning is not viewed as a priority by many agencies. DHS is working to ensure that limited Federal resources are targeted and expended more strategically on identified gaps, while maintaining adequate State and local flexibility.
- Many jurisdictions still pursue a short-term, technology-centric approach to solving emergency communications problems, but without addressing comprehensive planning for the equally important governance mechanisms, SOPs, and regular training and exercises.
- Procurement decisions are often made without consulting neighboring jurisdictions or agencies.

Supporting Initiatives and Milestones to Address Key Gaps:

- **Initiative 6.1: Conduct system life-cycle planning to better forecast long-term funding requirements.** Providing planning and business case best practices through technical assistance will enable leadership to project the true cost of sustaining the organization's communications system and allow budgeting for maintenance and eventual replacement. Grant funding investment justifications from States and spending within the Federal Government should be

²⁸ The Interoperability Business Case is available on the SAFECOM website at:
http://www.safecomprogram.gov/SAFECOM/library/grant/1336_interoperabilitybusiness.htm

prioritized to support cooperative, regional (intrastate and interstate) system planning efforts.

Recommended National Milestones:

- Within 12 months, DHS will revise current guidance documents that specify best practices for achieving basic operable communications while planning for interoperability.
 - Within 18 months, DHS will collect and share best practices to help emergency response agencies identify emergency communications system life-cycle benchmarks to enhance long-term cost planning and budgeting.
 - Within 24 months, Federal grant programs will require system life-cycle plans for all communications systems purchased with Federal grant dollars.
- **Initiative 6.2: Expand the use of public and private sector partnerships related to emergency communications.** Although the private sector owns more than 85 percent of critical infrastructure, government and emergency response agencies own and operate communications systems that support their critical missions, including defense, law enforcement, and emergency response.²⁹ The private sector's capabilities include fixed, mobile, and rapidly deployable networks, assets, and facilities that can help ensure the success of emergency communications. A more comprehensive understanding of the specific service offerings and capabilities of private sector organizations will enable emergency response agencies to better leverage existing and future communications capabilities.

Recommended National Milestones:

- Within 12 months, DHS convenes a summit of emergency responders and private sector representatives to identify and make recommendations on additional public-private sector partnerships to improve emergency communications.
- **Initiative 6.3: Assess existing Federal mission-critical wireless capabilities and upgrade and modernize them according to mission needs.** In many areas, Federal departments and agencies are still working to achieve the basic operability to achieve their missions. Federal agencies require high-quality, secure, and reliable communications systems to support their mission-critical operations. Whether facing a natural disaster or other emergency, tactical communications can enable Federal emergency responders to perform their jobs, ultimately protecting against the loss of life and property. Federal agencies must develop and implement strategies to meet modernization mandates and upgrade their infrastructures to attain resilient communications systems.

²⁹ *The National Infrastructure Protection Plan: Communications Sector-Specific Plan*, p. 11.

Recommended National Milestones:

- Within 6 months, all Federal departments and agencies assess existing communications capabilities and compare them with the capabilities needed to complete their missions.
 - Within 12 months, all Federal agencies determine priorities, plan budgets and schedules, and design required upgrades to mission-critical subscriber and infrastructure equipment.
- **Initiative 6.4: Enhance emergency communications system survivability using redundant and resilient system designs.** Disasters can adversely affect the performance of the communications systems that agencies use for emergency response. Emergency response agencies must identify the types of incidents that can disrupt the communications system components (e.g., radio repeaters, backhaul circuits, and power systems) and develop plans to enhance survivability. Implementing redundant infrastructure, developing resilience strategies, defining recovery time objectives, and exercising communications continuity plans will improve communications system survivability.

Recommended National Milestones:

- Within 12 months, DHS will coordinate with RECCWGs to conduct impact analyses of communications systems to identify the impact from the affects of the disaster and disruption scenarios analyzed.
- Within 18 months, DHS will coordinate with RECCWGs to ensure that all Federal, State, local, and tribal emergency response providers have developed and implemented communications continuity plans for maintaining or recovering and stabilizing operations during and following disaster events.
- Within 24 months, DHS will coordinate with RECCWGs to ensure that all Federal, State, local, and tribal emergency response providers have coordinated communications continuity exercises and established crisis communications procedures and policies.

Objective 7: Disaster Communications Capabilities

The Nation has integrated preparedness, mitigation, and response and recovery capabilities to communicate during significant events.

Significant incidents require maximum emergency response coordination. Emergency response is made more complex because such incidents often damage the communications infrastructure. To adequately react to the destruction or disruption of communications capabilities, agencies must proactively develop continuity plans, pre-position the placement and delivery of deployable communications assets and resources, and participate in training and exercise programs that include disaster communications-response scenarios. Appendix 3 provides an overview of Federal emergency response agencies and their programs, systems, and services.

Current Emergency Communications Activities:

- The Mobile Emergency Response Support (MERS) component of the FEMA DEC describes DHS' primary rapid and deployable emergency communications capability in support of Federal, State, and local responders for the first 96 hours following an incident.
- Since 2006, the FEMA DEC has been working with individual States and territories to identify potential communications gaps during responses and to mitigate the gaps by pre-planning response packages tailored for each State. FEMA plans to complete 23 State and territory DEC Annexes by 2008.
- The Joint Network Nodes (JNN) is the bridge between the Warfighter Information Network–Tactical (WIN-T), a high-capacity network system that enables units and command centers to communicate while on the move, and the Army's 30-year-old legacy voice communications system, Mobile Subscriber Equipment.
- The National Guard Bureau (NGB) has deployed the Joint Incident Site Communications Capability (JISCC) in 56 States and territories, a transit case-based system that includes satellite reach-back communications, incident site communications, interoperability gateway communications, and command post integration and support equipment.
- The PSIC Grant Program funded \$75 million in Strategic Technology Reserves (STR) for States and territories. Investments were made in deployable assets, radio caches, infrastructure enhancements, and satellite technology.
- Some State, local, and tribal agencies are developing statewide communications systems and shared systems to expand capabilities.
- Emergency response providers are enhancing communications continuity plans (e.g., backup and mobile/deployable solutions, and strategic technology reserves).
- Federal priority communications services and reporting systems are available for priority access and telecommunications system restoration and recovery (e.g., Government Emergency Telecommunications Service [GETS], Telecommunications Service Priority [TSP], Wireless Priority Service [WPS], and Disaster Information Reporting System [DIRS]).
- Established in 2002, the U.S. Northern Command (USNORTHCOM) provides Defense Support of Civil Authorities (DSCA) for domestic emergencies, both

natural and man-made, and provides command and control of DoD personnel and DoD agency and component resources.³⁰

Key Gaps and Obstacles Driving Action:

- The emergency response community needs to become better informed about Federal agencies' strategic, policy, and operational capabilities for emergency communications.
- There is no integration framework that describes disaster communications services, the community of agencies and companies that provide these services, and the procedures for integrating these services and communities.
- Communications planning activities related to disasters that may overwhelm or destroy communications systems are limited.
- There are multiple deployable and disaster communications asset data sets, but there is no comprehensive and accurate data set that could be used to integrate communications during a disaster.
- There is a need for disaster emergency communications technical standards to ensure uniform interoperability in terms of design specifications, methods of systems employment, processes, and/or operating practices. Some standards are mandatory and some are voluntary.
- Many agencies have a limited ability to identify replacement equipment and operations and maintenance funding to ensure the basic operability of their primary tactical systems.
- The ability to communicate across agencies and jurisdictions is limited by the fragmented nature of spectrum and by the requirement to operate on noncontiguous bands.
- Neither emergency response agencies nor commercial communications providers have standardized means for identifying individuals authorized to access and receive information about the disaster area.
- Few agencies conduct communications infrastructure threat and vulnerability assessments of their critical communications assets as part of their emergency communications planning activities.
- Many emergency response agencies are unaware of the priority services available from the Federal Government during emergencies.
- Many States do not have MOUs or frequency agreements with NGB to guide the use of the JISCC system.

Priority Initiatives and Milestones to Address Key Gaps:

- **Initiative 7.1: Provide an integration framework for disaster communications operations and response to ensure that the Federal Government can effectively fulfill requests during incident response.**
Although disaster communications capabilities are owned by many agencies and private sector entities, there is currently a limited understanding of how these capabilities would be integrated during operations. Following Hurricane Katrina,

³⁰ Government Accountability Office (GAO), *Report to Congressional Requesters: Homeland Defense*, April 2008.

deployable assets were in use across the operations areas, but there was limited coordination. In addition, a common operating picture was not available to senior leaders across government.

Recommended National Milestones:

- Within 6 months, DHS develops Disaster Tactical Communications Requirements Analysis to assess Federal, State, and local disaster emergency communications functional support areas (e.g., restoration, mission operations/team support, facility, tactical, and planning and coordination).
 - Within 12 months, based on the Disaster Tactical Communications Requirements Analysis, DHS develops an Integration Framework and Concept of Operations (CONOPS) describing how disaster communications requirements are filled and integrated at the national, regional, and incident levels.
 - Within 24 months, DHS establishes the capability to track and monitor Federal assets during a response scenario.
- **Initiative 7.2: Implement disaster communications planning and preparedness activities.** Identifying critical communications vulnerabilities and developing mitigation strategies is important for all agencies with operational responsibilities during significant incidents. Agencies should evaluate the readiness posture of communications centers (e.g., Public Safety Answering Points [PSAP]) and emergency response and commercial networks that may be vulnerable to weather damage, flooding, and man-made disasters. The vulnerabilities identified should be a primary focus of disaster planning and preparedness activities. System planning activities should account for the availability of alternative and backup communications solutions, and resilient and diverse pathways to support communications if primary capabilities become unavailable.

Recommended National Milestones:

- Within 12 months, RECCWGs will work with State and local agencies to assess priority State vulnerabilities that, absent mitigation, could jeopardize command and control capabilities and critical mission operations.
- Within 12 months, DHS develops and publishes best practices and methodologies that promote the incorporation of vulnerability assessments into the emergency communications planning process.
- Within 24 months, develop plans and procedures to enhance emergency 911 systems and PSAP communications.
- Within 24 months, complete disaster communications training and exercises for all 56 States and territories.

- Within 24 months, all Federal, State, local, and tribal agencies in UASIs will have defined alternate/backup capabilities in emergency communications plans.
- **Initiative 7.3: Leverage existing and emerging technologies to expand and integrate disaster communications capabilities among emergency response providers.** Deployable communications technologies can provide robust voice, video, and data capabilities for agencies during disasters. Packaging these capabilities to be quickly deployable and easily integrated and interoperable is a significant challenge. DHS will work across the government and the private sector to enable more effective pre-positioning and integration of existing and cutting-edge technologies.

Recommended National Milestones:

- Within 12 months, using the results of the Disaster Tactical Communications Requirements Analysis, DHS identifies a list of technologies that meets the majority of requirements identified.
- Within 18 months, DHS provides a Disaster Communications Capability List to be included in the AEL and the SEL that provides an overview of approved interoperable or standardized equipment that should be used during response.
- Within 24 months, DHS will reassess its pre-positioning framework to evaluate whether it best meets national disaster communications needs.
- **Initiative 7.4: Accelerate the implementation of emergency communications components in the NRF, specifically, national access and credentialing.** NRF establishes a comprehensive, national, all-hazards approach to domestic incident response and is used broadly in an operational context for incident management activities related to pre-incident prevention and post-incident response and recovery. The Joint Field Office (JFO) DEC Branch coordinates Federal communications support to response efforts during incidents requiring a Federal response. The JFO DEC Branch also coordinates communications support to Federal, State, local, and tribal governments and emergency responders when their systems have been impacted and provides communications and information technology support to the JFO and its field teams. Comprehensive use of NRF will ensure consistent operations across the Nation and will reduce the risk of miscommunication among emergency response agencies. Ensuring suitable credentialing for all responders who require access to an incident site is another factor that is critical to rapid and effective response and recovery. Depending on the extent and impact of the incident, those who require access and credentials may include Federal, State, local, and tribal emergency responders, as well as NGO and private sector telecommunications infrastructure provider response personnel.

Recommended National Milestones:

- Within 24 months, DHS develops national access and credentialing guidelines that offer emergency responders, including critical commercial communications providers, a means of identifying individuals eligible to access and receive information about the disaster area.
- **Initiative 7.5: Implement systems and procedures that ensure the Federal Government's ability to establish situational awareness, develop a common operating picture, and provide timely and consistent information during crises.** The collection and dissemination of information in preparation for and during an incident is essential to mitigate threats and to respond efficiently. Situational awareness includes predicting the occurrence of a natural disaster or an attack; knowing the extent of damage that results from an event; having an operating picture that includes the status of response activities, critical infrastructures, and public health; and understanding plans for response and restoration. Situational awareness processes and activities reduce barriers to information sharing.

Recommended National Milestones:

- Within 12 months, DHS establishes a plan for an integrated asset tracking system to enable information sharing across the national, regional, and incident levels.
- **Initiative 7.6: Promote the use of priority services programs and expand their capabilities (e.g., GETS, WPS, and TSP) to next-generation networks.** Priority access services are critical to the ability of emergency responders to access telecommunications resources during an incident. Significant incidents create high demand for telecommunications resources by emergency responders and the public. It is critical that emergency response providers have access to telecommunications resources when needed to enable information exchange. Currently, the National Communications System sponsors several priority access services (e.g., GETS, TSP, and WPS) that are available for use by Federal, State, local, and tribal agencies. Based on mission requirements, agencies across various levels of government should leverage these services to ensure access to telecommunications resources when needed. In addition, planning is needed to ensure the availability of these services as networks transition to next-generation technologies.

Recommended National Milestones:

- Within 18 months, OEC will work with statewide coordinators to promote the availability and use of priority access services throughout their States or territories.
 - Within 24 months, DHS establishes plans to transition priority access services to next-generation networks.

4. Implementing and Measuring NECP Achievement

The success of the NECP requires the commitment of all emergency response disciplines at all levels of government. Achieving its goals and priority objectives will require coordination across geographical, political, and cultural jurisdictions and boundaries. Therefore, this Plan provides strategic direction and guidance that Congress, Federal departments and agencies, State, local, and tribal government officials, and the private sector can use to identify future actions to address communications deficiencies.

4.1 Implementation

OEC, within DHS' National Protection and Programs Directorate (NPPD), is designated as the primary Federal agent charged with overseeing NECP implementation. In this role, OEC will monitor achievement of the NECP's recommended milestones and initiatives and will coordinate with its stakeholders to assess progress in reaching this Plan's goals. OEC's current options for motivating emergency response agencies to implement the NECP include providing technical assistance to State, regional, local, and tribal government officials; developing grant policies and coordinating DHS-administered grant programs (e.g., IECGP); and coordinating Federal activities through the ECPC and FPIC. In addition, OEC will use statutory reporting requirements to monitor and report on progress towards implementing the NECP (e.g., State annual reports under the IECGP, RECCWG annual reports, ECPC annual strategic assessment, and OEC's assessment and biennial progress reports).

Within the first year of the NECP implementation, OEC will partner with key stakeholders to determine valid metrics for the objectives and initiatives. OEC will provide a status report in its Biennial Progress Report to Congress, due February 2010. Implementation of the NECP will be a coordinated effort among all levels of government including those listed below.

Executive and Legislative Branches—The NECP will provide the legislative and executive branches with recommended initiatives and national milestones that will inform them of emergency communications priorities, activities, and resource allocations for consideration and action.

Federal Agencies—The NECP documents the challenges of coordinating emergency communications efforts at the Federal level. Federal responders must also be able to work with State and local responders during an emergency. Two key Federal partnerships will be used to implement the NECP. Through the ECPC, Federal implementation of the NECP will be a collaborative effort, offering all stakeholders a better understanding of the achievements at this level. Through FPIC, Federal response organizations will work with State and local agencies and governments to improve communications and resource sharing.

State, Local, and Tribal Governments—The NECP provides guidance for improved emergency communications to State, local, and tribal agencies and governments to better focus Federal funding dollars and provides a forum for regional planning and participation. State, local, and tribal governments should strive to align with the NECP and implement key initiatives.

Private Sector—The NECP identifies private sector support to communications during emergencies and recovery efforts and provides consistent direction for private sector involvement in standards development, advanced communications technologies, and services development and deployment.

4.2 Metrics

DHS will use future versions of the following reports and assessments to help assess progress toward achieving NECP goals:

- ECPC Annual Strategic Assessment
- RECCWG Annual Report
- OEC's Biennial Progress Report
- OEC's National Communications Capabilities Report.

Through OEC and the FEMA RECCWGs, DHS will collaborate with State homeland security advisors and statewide interoperability coordinators to develop valid methodologies for measuring progress toward these goals.

4.3 Future Requirements

As reflected in Initiatives 1.2 and 5.2, DHS will collaborate with Federal, State, regional, and local governments and the private sector to develop a more comprehensive and targeted set of evaluation criteria for defining, measuring, and assessing communications requirements across the Nation. To prevent duplicative reporting requirements for stakeholders, assessment efforts will leverage existing reporting requirements (e.g., SCIPs, TICP, and State preparedness reports) and grant program applications (e.g., IECGP and HSGP). Evaluation criteria will be consistent with DHS implementation of the National Preparedness Guidelines and the TCL.

V. Conclusion

Ultimately, the NECP's goals cannot be achieved without the support, dedication, and commitment of the stakeholders who have been involved in developing this Plan. The Federal, State, local, tribal, and private sectors must work together and support each other to achieve nationwide operability, interoperability, and continuity of emergency communications. The NECP provides stakeholders with a shared strategy to mitigate the unique challenges that effective communication presents. By taking the NECP to action, this diverse community can truly achieve a unified vision that allows emergency responders to communicate as needed, on demand, and as authorized, at all levels of government and across all disciplines.

NECP Appendices

- Appendix 1: NECP Legislative Requirements Compliance Matrix**
- Appendix 2: Alignment with National Strategies, Planning Initiatives, and Key Authorities**
- Appendix 3: Key Federal Emergency Communications Initiatives, Programs, Systems, and Services**
- Appendix 4: DHS Organizations with Responsibilities and Programs Supporting Emergency Communications**
- Appendix 5: The SAFECOM Interoperability Continuum**
- Appendix 6: NECP Stakeholder Coordination**
- Appendix 7: NECP Source Documents**
- Appendix 8: Glossary of Terms**
- Appendix 9: Acronyms**

Appendix 1: NECP Legislative Requirements Compliance

Exhibit A1-1 is a matrix that maps the National Emergency Communications Plan (NECP) to the Title XVIII legislative requirements.

Exhibit A1-1: Matrix of Title XVIII Legislative Requirements with NECP Sections

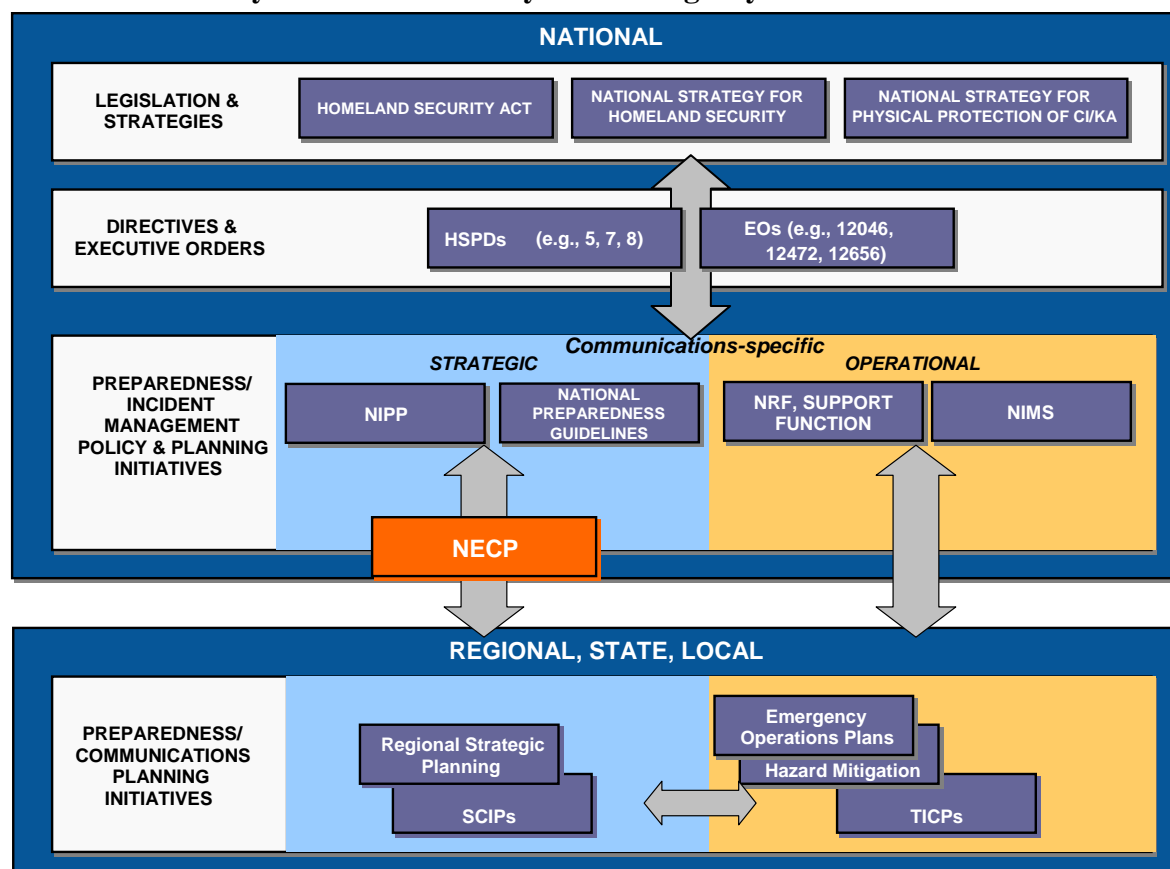
No.	Title XVIII Legislative Requirements	NECP Section(s)
1	Include recommendations developed in consultation with the Federal Communications Commission (FCC) and the National Institute of Standards and Technology (NIST) for a process for <i>expediting national voluntary consensus standards</i> for interoperable emergency communications equipment	<u>Section 3</u> – Objective 4: Standards & Emerging Technologies
2	Identify the appropriate <i>capabilities</i> necessary for emergency response providers and relevant government officials to <i>continue to communicate</i> in the event of natural disasters, acts of terrorism, and other man-made disasters	<u>Section 2.3</u> – Capabilities Needed
3	Identify the <i>appropriate interoperable emergency communications capabilities</i> necessary for Federal, State, local, and tribal governments in the event of natural disasters, acts of terrorism, and other man-made disasters	<u>Section 2.3</u> – Capabilities Needed
4	Recommend both <i>short-term and long-term solutions</i> for ensuring that emergency response providers and relevant government officials can <i>continue to communicate</i> in the event of natural disasters, acts of terrorism, and other man-made disasters	<u>Section 3</u> – Initiatives and Milestones for Objectives 2, 3, 5, 7
5	Recommend both <i>short-term and long-term solutions</i> for deploying interoperable emergency communications systems for Federal, State, local, and tribal governments throughout the Nation, including through the provision of <i>existing and emerging technologies</i>	<u>Section 3</u> – Initiatives and Milestones for Objectives 3, 4, 5, 6
6	Identify how <i>Federal departments and agencies</i> that respond to natural disasters, acts of terrorism, and other man-made disasters <i>can work effectively with State, local, and tribal governments</i> in all States, and with other entities	<u>Section 3</u> – Objectives 1, 2, 7
7	Identify <i>obstacles to deploying interoperable</i> emergency communications capabilities nationwide and <i>recommend short-term and long-term measures</i> to overcome those obstacles, including recommendations for <i>multi-jurisdictional coordination</i> among Federal, State, local, and tribal governments	<u>Section 3</u> – For all objectives, see “Key Gaps Driving Action” for obstacles and relevant “Initiatives” for recommendations
8	Recommend <i>goals and time frames</i> for the deployment of emergency, <i>command-level communications systems</i> and develop a timetable for the deployment of interoperable emergency communications systems nationwide	<ul style="list-style-type: none"> • <u>Section 2.2</u> – Goals • <u>Section 3</u> – Relevant Initiatives and Milestones for all Objectives
9	Recommend appropriate measures that emergency response providers should employ to ensure <i>continued operation of relevant governmental communications infrastructure</i>	<u>Section 3</u> – Initiatives 4.2, 4.3, 6.2, 6.4, 7.2, 7.3
10 ³¹	(HR 1) Set a <i>date, including interim benchmarks</i> , by which State, local, and tribal governments, and Federal agencies expect to achieve a <i>baseline level of national interoperable communications</i>	<u>Section 2.2</u> – Goals

³¹ This NECP requirement was added by H.R. 1, *Implementing Recommendations of the 9/11 Commission Act of 2007* (Public Law 110-53), which was signed into law August 3, 2007.

Appendix 2: Alignment with National Strategies, Planning Initiatives, and Key Authorities

The NECP has been designed to complement and support overarching homeland security and emergency communications legislation, strategies, and initiatives. The NECP applies guidance from these authorities, including key principles and priorities, to establish the first national strategic plan focused exclusively on improving emergency communications for emergency response providers nationwide. Moreover, the NECP provides a critical link between national communications priorities and strategic and tactical planning at the regional, State, and local levels. Exhibit A2-1 illustrates the linkage between the NECP and primary emergency communications authorities.

Exhibit A2-1: Key Homeland Security and Emergency Communications Authorities



Various emergency communications authorities shape, and are reflected in, the NECP—

- **Legislation**—The *Homeland Security Act of 2002*, as amended by the *Homeland Security Appropriations Act of 2007*, provides the primary authority for the homeland security mission and establishes a foundation for emergency communications efforts nationwide. Other legislation identifies priorities at the national level and establishes departmental responsibilities and processes related to national preparedness and emergency communications.

- **Strategies**—National strategies provide the vision and strategic direction for emergency communications elements of the homeland security mission. For example, the *National Strategy for Homeland Security* emphasizes situational awareness as an incident management principle and stresses the importance of communications interoperability and survivability. This strategy and others, such as the *National Strategy for the Physical Protection of Critical Infrastructure and Key Assets*, identify high-level actions and priorities for national preparedness related to communications (e.g., improving public safety communications, supporting development of interoperable, secure communications systems, coordinating interoperability standards, developing redundant communications networks, and promoting common standards and terminology for equipment and training).
- **Federal Directives and Executive Orders**—These documents set national policies and executive mandates for specific initiatives, programs, and associated responsibilities. For example, *Homeland Security Presidential Directive 5 (HSPD 5)* required the Department of Homeland Security (DHS) to develop and implement a *National Incident Management System (NIMS)* and the *National Response Plan (NRP)*. *HSPD 8* mandated the development of a *National Preparedness Goal* to help entities build and maintain capabilities to prevent, protect, respond, and recover from major incidents. Other directives and executive orders identify and assign responsibilities for communications functions (e.g., spectrum, critical infrastructure, telecommunications continuity, and alert and warning).
- **Preparedness/ Incident Management DHS Policy and Planning Initiatives**—National policy and planning initiatives follow from legislation, directives, and orders, implementing the programs and activities described therein. Consistent with these DHS policy initiatives, the NECP focuses on improving the emergency communications posture nationwide through strategic goals, objectives, initiatives, and milestones. Following are descriptions of some key Federal policy and planning initiatives for incident management and emergency response:
 - **National Infrastructure Protection Plan (NIPP)**—The NIPP, and supporting sector-specific plans, establishes a comprehensive risk management framework that provides the unifying structure for integrating existing and future critical infrastructure and key resource (CI/KR) protection efforts into a single national program. The NIPP specifies key initiatives, milestones, and metrics required to protect the Nation’s CI/KR and provides a coordinated approach that defines the roles and responsibilities of Federal, State, and local governments as well as the private sector.
 - **National Incident Management System (NIMS)**—Provides a nationwide template for incident management, establishing uniform doctrine for command and management, resources, communications, information management, and supporting technologies. Specific to communications, NIMS defines concepts and principles (e.g., interoperability, reliability, resiliency), management characteristics (e.g., communications types, planning, equipment standards, training), and standards and formats (e.g., radio usage procedures, plain language), which are clearly reflected in the NECP.
 - **National Response Framework (NRF)**—Establishes a comprehensive, national, all-hazards approach to domestic incident response. The NRF is used broadly in an operational context for incident management activities related to pre-incident prevention and post-incident response and recovery.

- **National Preparedness Guidelines**—Provides readiness targets, priorities, standards for assessments and strategies, and a system for assessing the Nation’s overall level of preparedness. The guidelines consist of standard planning tools, such as the Target Capabilities List (TCL), that agencies should develop and maintain to provide guidance on the specific capabilities and levels of capability related to the homeland security mission. In the area of communications, the TCL stresses the importance of operable, interoperable, and redundant communications during an emergency, and provides measures and metrics to define how quickly and how effectively critical communications tasks should be performed. The NECP was developed consistent with TCL guidelines and preparedness objectives, and should help local communities meet their requirements under TCL.
- **State, Regional, and Local Planning**—The NECP provides a critical link between national priorities and strategic and tactical planning at the regional, State, and local levels. DHS has analyzed the progress and gaps identified through State and local planning efforts in developing the NECP’s priorities, initiatives, and associated actions. In turn, these national priorities will be incorporated into existing and future regional, State, and local planning efforts.

Descriptions of the key legislation, strategies, directives and executive orders, and policy initiatives that shape the emergency communications policy environment are provided below.

A2.1 Legislation

Exhibit A2-2 describes the key legislation that guides national efforts to ensure communications during crises.

Exhibit A2-2: Key Legislation

Name	Date	Description
The Communications Act of 1934, amended by the Telecommunications Act of 1996	June 19, 1934; February 8, 1996	Authorizes the Executive Branch to manage communications during wartime and non-wartime emergencies, and creates the Federal Communications Commission (FCC) as the chief regulatory authority for communications technologies. The FCC works to enhance emergency communications capabilities and addresses critical spectrum issues within the Public Safety and Homeland Security Bureau and in coordination with the National Telecommunications and Information Administration (NTIA).
Defense Production Act of 1950	September 8, 1950	Ensures timely availability of the products, materials, and services needed to meet national defense and emergency preparedness requirements, and provides an operating structure to support a timely, comprehensive response by industry in a national emergency situation.
Information Technology Management Reform Act of 1996 (P.L. 104-106)	February 10, 1996	Specifies that the National Institute of Standards and Technology (NIST) develop standards, guidelines, and associated methods and techniques for Federal computer systems. Federal Information Processing Standards (FIPS) are developed by NIST when there are no existing voluntary standards to address the Federal requirements for the interoperability of different systems, portability of data and software, and computer security.
The Balanced Budget Act of 1997; Deficit Reduction Act (P.L. 109-171)	August 5, 1997; February 8, 2006	Requires the FCC to allocate 24 MHz of spectrum in the 700 MHz band to public safety. The Deficit Reduction Act sets a firm deadline of February 2009 by which television broadcasters must vacate the occupied spectrum for the public safety community.
10 U.S.C. Section 372-380, Military Support for Civilian Law Enforcement Agencies, as amended	1998	Establishes protocols for the development, use, support, and maintenance of communications equipment shared by the U.S. military and local law enforcement agencies.

Name	Date	Description
The Robert T. Stafford Disaster Relief and Emergency Assistance Act	November 23, 1988	Establishes processes by which the Federal government can provide assistance to State, local, and tribal governments, individuals, and nongovernmental organizations (NGO) for all-hazards emergency response and recovery. This includes establishment and use of temporary communications systems in anticipation of or during an emergency.
Disaster Mitigation Act of 2000 (P.L. 106-390)	October 30, 2000	Amends the Stafford Act and requires State mitigation plans as a condition of disaster assistance.
The Homeland Security Act of 2002 (Public Law [P.L.] 107-296)	November 25, 2002	Establishes the DHS as an executive department of the United States and specifies significant responsibilities associated with emergency preparedness, response, and recovery, including emergency communications and critical infrastructure. Includes provisions for coordinating or (as appropriate) consolidating communications systems related to homeland security at all levels of government.
Federal Information Security Management Act of 2002 (part of P.L. 107-347)	December 17, 2002	Requires Federal agencies to develop a comprehensive information technology security program to ensure the effectiveness of information security controls over information resources that support Federal operations and assets.
The Intelligence Reform and Terrorism Prevention Act (P.L. 108-458)	December 17, 2004	Addresses national preparedness by identifying the need for a nationwide incident command system; establishes the Office for Interoperability and Compatibility (OIC) for the enhancement of public safety interoperability; and calls for studies on interoperable communications standards, spectrum, and strategies to meet public safety communications requirements.
The Homeland Security Appropriations Act of 2007 (P.L. 109-295), including the 21st Century Emergency Communications Act of 2006	October 4, 2006	Includes Title VI, the Post-Katrina Emergency Management Reform Act, which reorganizes the Federal Emergency Management Agency (FEMA), amends the Stafford Act, and addresses emergency communications. In addition, the legislation amends the Homeland Security Act of 2002 to add Title XVIII—Emergency Communications, establishing the Office of Emergency Communications (OEC) and specifying its responsibilities. Transfers existing programs (e.g., Integrated Wireless Network, Interoperable Communications Technical Assistance Program) and elements of other programs (e.g., SAFECOM) to OEC and assigns new responsibilities (e.g., National Emergency Communications Plan, National Baseline Assessment, and outreach and coordination).
Implementing the Recommendations of the 9/11 Commission Act of 2007 (P.L. 110-53)	August 3, 2007	Amends the Homeland Security Act of 2002 to establish the Urban Area Security Initiative to provide grants to assist high-risk metropolitan areas to prevent, prepare for, protect against, and respond to terrorist acts. Establishes the State Homeland Security Grant Program to assist State, local, and tribal governments to prevent, prepare for, protect against, and respond to terrorist acts. Directs the Secretary to establish the Interoperable Emergency Communications Grant Program to make grants to States to carry out initiatives to improve international, national, regional, statewide, local, and tribal, interoperable emergency communications.

A2.2 Strategy

Exhibit A2-3 describes the key homeland security strategies that provide direction for emergency communications elements of the homeland security mission.

Exhibit A2-3: Key Homeland Security Strategies

Name	Date	Description
National Strategy for the Physical Protection of Critical Infrastructures and Key Assets	February 2003	Identifies the policy, goals, objectives, and principles for actions needed to <i>secure the infrastructures and assets vital to national security, governance, public health and safety, economy, and public confidence</i> . Directs DHS to partner with the private sector to understand the risks associated with the physical vulnerabilities of critical infrastructures and key assets.
National Strategy to Secure Cyberspace	February 2003	Establishes priorities and initiatives to improve the physical security of cyber systems and communications, including interdependencies.
National Strategy for Homeland Security	October 2007 (revised)	Provides a common framework to guide the Nation's homeland security efforts toward achieving four primary goals: (1) prevent and disrupt terrorist attacks; (2) protect people, critical infrastructures, and key resources; (3) respond and recover from incidents; and (4) strengthen the homeland security foundation for long-term success. Specific to communications, the strategy emphasizes situational awareness as a critical incident management principle and stresses the importance of communications interoperability and survivability.

A2.3 Directives and Executive Orders

Exhibit A2-4 describes the key directives and executive orders for ensuring communications during crises.

Exhibit A2-4: Key Directives and Executive Orders

Name	Date	Description
Executive Order 12046, Relating to the Transfer of Telecommunications Functions	March 27, 1978	Delegates presidential responsibilities for management of the Federal electromagnetic spectrum to the Secretary of Commerce. Provides for the continuation of the Inter-department Radio Advisory Committee (IRAC) to assist the Secretary in exercising the delegated presidential authority.
Department of Commerce Organization Order 10-10	May 9, 1978	Establishes the National Telecommunications and Information Administration (NTIA), delegates presidential responsibilities for management of the electromagnetic spectrum to its administrator, and establishes the administrator's authority and responsibility for all radio communications systems operated by the Federal government.
Presidential Directive 53, National Security Telecommunications Policy	November 15, 1979	Reaffirms the need for connectivity for the Nation's leaders and the ability to respond, restore, and recover the national telecommunication infrastructure in all emergencies.
Executive Order 12372, Intergovernmental Review of Federal Programs	July 14, 1982	Intends to foster intergovernmental partnerships by providing opportunities for State, regional, and local coordination and review of proposed Federal financial assistance.
National Security Decision Directive 97, National Security Telecommunications Policy	June 13, 1983	Sets requirements for emergency restoration and recovery of communications that support the Nation's leaders, worldwide intelligence, and diplomacy. Confirms the provision of interoperable, reliable, and secure communications for the President and his chief advisors as a national priority.
Executive Order 12472, Assignment of National Security and Emergency Preparedness (NS/EP) Telecommunications Functions	April 3, 1984	Establishes the National Communications System (NCS) as the Federal interagency system to ensure that the national telecommunications infrastructure is responsive to the NS/EP needs of national leaders, the military, the Intelligence Community, and emergency responders. Establishes NCS as the focal point for joint industry/government NS/EP communications planning and directs the establishment of a national coordinating center. Establishes DHS as the agency responsible for planning, providing, operating, and maintaining telecommunications services and facilities as part of the National Emergency Management Systems. Identifies DHS' role in advising, assisting, and ensuring that State and local governments develop and maintain national security and emergency preparedness telecommunications plans.

Name	Date	Description
Executive Order 12656, <i>Assignment of EP Responsibilities</i>	November 18, 1988	Delegates NS/EP responsibilities to Federal departments and agencies, instructs agencies to develop plans and capabilities that will ensure continuity of operations, and reaffirms the need for interagency cooperation in the pursuit of telecommunications NS/EP.
NCS Directive 3-1, <i>Telecommunications Operations</i>	August 10, 2000	Implements policy, assigns responsibilities, and establishes procedures for the Telecommunications Service Priority (TSP) Program. Authorizes priority services for domestic telecommunications services (e.g., Government Emergency Telecommunications Service [GETS] and Wireless Priority Service [WPS]).
Executive Order 13231, <i>Critical Infrastructure Protection</i>	October 16, 2001	Establishes the President's Critical Infrastructure Protection Board, tasked with ensuring the protection of information systems for critical infrastructure, including emergency preparedness communications and the physical assets that support these systems.
Homeland Security Presidential Directive (HSPD) 5, <i>Management of Domestic Incidents</i>	February 28, 2003	Directs the Secretary of DHS to develop and administer a national incident management system. The system is to provide a consistent nationwide approach to enable Federal, State, local, and tribal governments and the private sector to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents regardless of cause, size, or complexity.
HSPD 7, <i>Critical Infrastructure Identification, Prioritization, and Protection</i>	December 17, 2003	Calls for Federal departments and agencies to identify, prioritize, and coordinate the protection of critical infrastructures and key resources to prevent, deter, and mitigate the effects of deliberate efforts to destroy, incapacitate, or exploit them. Assigns DHS (delegated to the NCS) as the lead for coordinating protection of national critical infrastructures, including the communications sector.
HSPD 8, <i>National Preparedness</i>	December 17, 2003	Establishes policies to strengthen national preparedness to prevent and respond to terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal. Establishes mechanisms for improved delivery of Federal preparedness assistance to State and local governments, and outlines actions to strengthen the preparedness capabilities of Federal, State, regional, local, and tribal entities.
Spectrum Policy for the 21st Century, <i>The President's Spectrum Policy Initiative</i>	November 30, 2004	Establishes processes to implement a comprehensive U.S. Spectrum Policy to foster economic growth, ensure national and homeland security, maintain U.S. global leadership in communications technology development and services, and satisfy other vital needs in areas such as public safety, scientific research, Federal transportation infrastructure, and law enforcement. NTIA leads the implementation of this initiative. Also calls for DHS to develop a comprehensive plan for non-Federal public safety spectrum needs.
Executive Order 13407, <i>Public Warning System</i>	June 28, 2006	Calls for an effective, reliable, integrated, and flexible system to alert and warn the American people in all-hazard emergencies. DHS is the Executive Agent for the Public Alert and Warning System Program.
HSPD 20, <i>National Continuity Policy</i>	May 4, 2007	Establishes National Essential Functions, which prescribe continuity requirements for all executive departments and agencies and provide guidance for State, local, territorial, and tribal governments and private sector organizations.
NCS Directive 3-10, <i>Minimum Requirements for Continuity Communications Capabilities</i>	July 25, 2007	Requires that all departments and agencies that support National Essential Functions operate and maintain—or have dedicated access to—communications capabilities at their headquarters and alternate operating facilities, as well as mobile in-transit communications capabilities, to ensure continuation of mission critical functions across the full spectrum of hazards, threats, and emergencies, including catastrophic attacks or disasters.

A2.4 National-Level Policy and Planning Initiatives

Exhibit A2-5 describes the key national-level policy and planning initiatives that guide emergency response efforts.

Exhibit A2-5: Key National-Level Policy and Planning Initiatives

Name	Date	Description
National Incident Management System (NIMS)	March 1, 2004	The NIMS presents a unified approach to incident management, provides standard command and control structures, and emphasizes preparedness, mutual aid, and resource management. The NIMS emphasizes that establishing and maintaining a common operational picture and ensuring accessibility and interoperability are principal goals of communications and information management.
Manual of Regulations and Procedures for Federal Radio Frequency Management	May 2003 edition; September 2006 revision	Issued by the Assistant Secretary of Commerce for Communications and Information to address the Department of Commerce's frequency management responsibilities pursuant to delegated authority under Section 305 of the Communications Act of 1934, as amended.
National Infrastructure Protection Plan (NIPP)	July 2006	The NIPP, and supporting sector-specific plans, establishes a comprehensive risk management framework that provides the unifying structure for integrating existing and future critical infrastructure and key resource (CI/KR) protection efforts into a single national program. The NIPP specifies the key initiatives, milestones, and metrics required to protect the Nation's CI/KR and provides a coordinated approach that defines the roles and responsibilities of Federal, State, and local governments as well as the private sector.
National Preparedness Guidelines	September 2007	Provides readiness targets, priorities, standards for assessments and strategies, and a system for assessing the Nation's overall level of preparedness. Consists of related preparedness tools, such as the National Preparedness Vision, National Planning Scenarios, the Universal Task List, and the Target Capabilities List.
National Response Framework (NRF), including <i>Emergency Support Function (ESF) #2</i>	December 2004; re-released January 22, 2008	Establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents. Provides the structure and mechanisms to coordinate and integrate incident management activities and emergency support functions across Federal, State, local, and tribal government entities, and the private sector. ESF #2, led by NCS, ensures Federal communications support to Federal, State, local, tribal, and private sector efforts.

A2.5 State, Regional, and Local Planning

Exhibit A2-6 describes some of the key regional, State, and local planning initiatives related to emergency communications.

Exhibit A2-6: Key Regional, State, and Local Planning Initiatives

Name	Date	Description
State and Local Guide (SLG) 101: Guide for All-Hazard Emergency Operations Planning	September 1996	Provides emergency response agencies with information on FEMA's concept for developing risk-based, all-hazard emergency operations plans. Clarifies the preparedness, response, and short-term recovery planning elements that warrant inclusion in State and local Emergency Operations Plans.
Tactical Interoperable Communications Plan (TICP)	December 2006	TICPs present a region's plan for establishing and maintaining tactical interoperable communications, defined as the rapid provision of on-scene, incident-based, mission-critical voice communications among all first-responder agencies, in support of an incident command system as defined in the NIMS model. Developed initially by the Urban Area Security Initiative (UASI) areas in response to Fiscal Year (FY) 2005 Homeland Security Grant Program (HSGP) guidance.

Name	Date	Description
Statewide Communication Interoperability Plan (SCIP)	March 2008	Describes the strategic vision, goals, and key long-term and short-term strategic initiatives for States to improve communications interoperability. Serves as a mechanism and roadmap to align emergency responders at all levels of State government to improve communications interoperability. Developed initially in response to FY07 HSGP and Public Safety Interoperable Communications (PSIC) Grant Program requirements.

Appendix 3: Key Federal Emergency Communications Initiatives, Programs, Systems, and Services

This appendix presents a summary of key Federal initiatives related to emergency communications collected as part of the ECPC clearinghouse *Federal Interoperability Catalog*. While this is not an exhaustive inventory of Federal programs, the information below represents the most comprehensive data set to date and will act as living document. The summary below promotes emergency interoperable communications information sharing and awareness among Federal agencies by highlighting programs and initiatives that are related to other departments and agencies, including:

- Policy and Planning Initiatives
- Federal Systems and Services
- Information Sharing and Command and Control Centers
- Standards and Research, Development, Testing, and Evaluation (RDT&E) Initiatives
- Grant Funding Initiatives
- Training and Exercise Initiatives.

Exhibit A3-1 summarizes key emergency communications policy and planning initiatives.

Exhibit A3-1: Key Emergency Communications Policy and Planning Initiatives

Type of Policy/Plan	Key Policies, Plans, and Assessments	Lead Agency
Strategy, Legislation, Directives	<ul style="list-style-type: none"> See Appendix 2 for overview of National Strategies, Legislation, Directives, and Executive Orders related to emergency communications 	Executive branch, Congress
Regulatory, Spectrum Management	<ul style="list-style-type: none"> Regulation of interstate and international communications (by radio, television, wire, satellite, and cable) <ul style="list-style-type: none"> Spectrum (e.g., 700 MHz D Block, digital television transition, 800MHz rebanding) Alert and warning (e.g., Public Safety Access Point [PSAP], Enhanced 911, Emergency Alert System [EAS], commercial mobile alerts) Other (e.g., priority telecommunications and amateur radio services, special temporary authority) Federal government spectrum management, communications policy initiatives 	FCC NTIA
National Preparedness Doctrine³²	<ul style="list-style-type: none"> National Response Framework (NRF), Emergency Support Function #2 (ESF#2), National Incident Management System (NIMS) National Preparedness Guidelines: Target Capabilities List (TCL), Universal Task List (UTL), National Planning Scenarios 	DHS DHS
Emergency Communications Planning	<ul style="list-style-type: none"> National/regional planning: National Infrastructure Protection Plan (NIPP), National Emergency Communications Plan (NECP), FEMA Disaster Emergency Communications (DEC) planning, Regional Emergency Communications Coordination (RECC planning) State-level planning: Statewide Communication Interoperability Plans (SCIP), all-hazard emergency operations planning (and communications annexes) Local-level planning: Tactical Interoperable Communications Plans (TICP), all-hazard emergency operations planning (and communications annexes) 	DHS State agencies Local agencies
National-Level Assessments	<ul style="list-style-type: none"> National Communications Capability Report (NCCR), SAFECOM National Interoperability Baseline Survey, DHS Nationwide Plan Review, Tactical Interoperable Communications Scorecard Report, others NSTAC Emergency Communications and Interoperability Report, Katrina After Action Reports, 9/11 Commission Reports 	DHS Multiple authors

³² Appendix 2 provides additional information on National Preparedness Doctrine.

Exhibit A3-2 presents key tactical and emergency communications systems and programs, as well as telecommunications and other support services provided by Federal government agencies.

Exhibit A3-2: Federal Tactical and Emergency Communications Systems and Services

Department	Agency/Bureau	Key Programs/Projects/Resources
Commerce	NTIA	Office of Spectrum Management (e.g., national interoperability channel resources)
DHS	Customs and Border Protection (CBP)	Secure Border Initiative Network (SBINet) Tactical Modernization Program
	Federal Emergency Management Agency (FEMA)	Disaster Emergency Communications (DEC) Mobile Emergency Response System (MERS) FEMA National Radio System (FNARS) Emergency Alert System (EAS) (with FCC, National Oceanic and Atmospheric Administration [NOAA]), Digital Emergency Alert System (DEAS) Geo-Targeted Alerting System (GTAS) (with NOAA) DHS Web Alert and Relay Network (WARN) Integrated Public Alert & Warning System (IPAWS) (with FCC, NOAA/NWS) National Warning and Alert System (NAWAS) Homeland Security Preparedness Technical Assistance Program (e.g., Response/Recovery focusing on Interoperable Communications)
	Immigrations and Customs Enforcement (ICE)	Atlas Program
	National Communications System (NCS)	Government Emergency Telecommunications Service (GETS) Telecommunications Service Priority (TSP) Program Wireless Priority Service (WPS) Shared Resources (SHARES) High-Frequency (HF) Radio Program ESF #2 Communications Asset Database (CAD)
	OEC	Integrated Wireless Network (IWN) Interoperable Communications Technical Assistance Program (ICTAP) SAFECON (guidance, tools, templates) FPIC integration projects Communications Asset Survey and Mapping (CASM) Tool ECPC clearinghouse
	OIC	SAFECON (R&D, T&E, Standards)
	Office of the Chief Information Officer (OCIO)	OneNet Homeland Security Information Network (HSIN)
	U.S. Coast Guard (USCG)	Rescue 21 Nationwide Automatic Identification System (NAIS) Deepwater
DoD	DoD	Single Channel Ground and Airborne Radio System (SINCGARS) Joint Tactical Radio System Transformational Satellite Communications System (TSAT) Joint task force civil support assets for disaster relief Global Information Grid (GIG)
	Department of the Army	Army installation land mobile radio (LMR) systems Joint Interoperability Test Command
	U.S. Marine Corps	Marine Corps Network Operations and Security Center
	Department of the Navy	National Enterprise Land Mobile Radio (ELMR) infrastructure
	National Guard Bureau (NGB)	Air National Guard (ANG)–Theater Deployable Communications (TDC) Joint Incident Site Communications Capability (JISCC) Army National Guard (ARNG) Joint Network Node (JNN) / Warfighter Information Network-Tactical (WIN-T)
DOJ	Wireless Management Office (WMO)	IWN DOJ 25 cities COMMTECH
	WMO/Federal Bureau of Investigation (FBI)	Satellite Mutual Aid Radio Talkgroup (SMART)
DOE	OCIO	Information Resource Program (includes wireless communications)
DOI	DOI OCIO Enterprise Infrastructure Division	Public Safety Communications Program

Department	Agency/Bureau	Key Programs/Projects/Resources
	Bureau of Land Management (BML)	National Interagency Fire Center (NIFC) assets
	Aircraft Management Division (AMD)	Joint aircraft all-risk-management, with USDA
DOT	National Highway Traffic Safety Administration	Enhanced 9-1-1 Next-Generation 9-1-1
USDA	U.S. Forest Service	National Interagency Incident Communications Division (NIICD) (partnership with Department of the Interior agencies)
Treasury	Wireless Programs Office	IWN
FCC	Public Safety Homeland Security Bureau (PSHSB)	PSHSB clearinghouse, ESF #2 CAD Disaster Information Reporting System (DIRS) Network Outage Reporting System (NORS)
NOAA	National Weather Service (NWS)	Alert and warning systems (e.g., EAS, GTAS)

Exhibit A3-3 presents examples of key homeland defense, homeland security, and public safety centers that have been established to share critical and sensitive information to protect the Nation, and to provide proper levels of command and control over field forces that could be brought to bear for incidents that require Federal assistance. These centers coordinate information, provide support to Federal, State, local, and tribal agencies engaged in response or recovery activities, and ensure that affected parties receive critical or sensitive information in a timely manner.

Exhibit A3-3: Information Sharing and Command and Control Centers

Coordination Centers	Lead Agency	Supporting/Participating Departments and Agencies
National Operations Center (NOC)	DHS/Office of Operations Coordination	Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), Central Intelligence Agency (CIA), USCG, Bureau CBP, Defense Intelligence Agency (DIA), DoD, DOE, Department of Health and Human Services (HHS), DOI, Department of State, DOT, Department of Veterans Affairs (VA), Drug Enforcement Administration (DEA), Environmental Protection Agency (EPA), Federal Air Marshal Service (FAMS), FBI, FEMA, Federal Protective Service (FPS), Geo-spatial Mapping Office, ICE, Information Analysis Office, Infrastructure Protection Office, National Geospatial-Intelligence Agency (NGA), National Capital Region (NCR), NOAA, National Security Agency, Postal Inspection Service, DHS Public Affairs, DHS Science and Technology Directorate, United States Secret Service (USSS), DHS State and Local Coordination Office, Transportation Security Administration (TSA), Los Angeles Police Department (LAPD), Metropolitan Police of the District of Columbia (MPDC), New York Police Department (NYPD)
National Response Coordination Center (NRCC)	DHS/FEMA	Commerce, DoD, DOE, Department of Housing and Urban Development, DOI, DOJ, Department of Labor, Department of State, DOT, EPA, FCC, FEMA, General Services Administration, HHS, National Aeronautics and Space Administration, NCS, National Voluntary Organizations Active in Disaster, Nuclear Regulatory Commission, Office of Personnel Management, Social Security Administration, Treasury, U.S. Agency for International Development, U.S. Army Corps of Engineers, USCG, USDA, U.S. Postal Service, VA, American Red Cross, Corporation for National and Community Service, Small Business Administration, Tennessee Valley Authority
National Response Center (NRC)	DHS/USCG	Space and Naval Warfare Systems Command (SPAWAR), DoD/Edgewood Chemical Biological Center (ECBC), DOE, EPA, FBI, FEMA, HHS/Centers for Disease Control and Prevention (CDC), DOT/Federal Railroad Administration (FRA), National Transportation Safety Board (NTSB), Nuclear Regulatory Commission
National Interagency Fire Center (NIFC)	Interior/USFS	USFS/BLM, Bureau of Indian Affairs, Fish and Wildlife Service, National Park Service, NOAA/NWS, DOI/National Business Center/Aviation Management Division, US Fire Administration, National Association of State Foresters

Coordination Centers	Lead Agency	Supporting/Participating Departments and Agencies
National Law Enforcement Communications Center (NLECC)	DHS/CBP	ICE
National Coordinating Center for Telecommunications (NCC)	DHS/NCS	Communications Information Sharing and Analysis Center (Comm ISAC)
National Counterterrorism Center (NCTC)	Director of National Intelligence	CIA, FBI, and 14 other classified and unclassified agencies
National Military Command Center (NMCC)	DoD	Joint Staff of the armed forces

Exhibit A3-4 presents key standards and RDT&E initiatives involving emergency communications.

Exhibit A3-4: Standards Development and RDT&E Initiatives

Type of Initiative	Initiative	Key Organizations/Departments/Agencies
Digital Public Safety Radio Standards	APCO Project 25 (P25), P25 Compliance Assessment Program	APCO, Telecommunications Industry Association (TIA), DHS, National Institute of Standards and Technology (NIST)
Broadband Committees	APCO Project 25 Interface Committee (APIC) Broadband Task Group, Project Mesa, P34	APCO, TIA, NIST
Data Exchange Standards	Emergency Data Exchange Language (EDXL) Messaging Standards Initiative, Common Alerting Protocol (CAP)–Distribution Element (DE), Hospital Availability Exchange (HAVE) and Resource Messaging (RM), National Information Exchange Model (NIEM)	DOJ, DHS, COMCARE
RDT&E Programs	<ul style="list-style-type: none"> ▪ DHS Science and Technology Directorate (S&T): 4.9 GHz Wireless Standard, Voice over Internet Protocol (VOIP) specifications, Digital Vocoder Working Group, Radio over Wireless Broadband (ROW-B), Multi-Band Radio ▪ NTIA Institute for Telecommunications Sciences (ITS): Broadband Wireless, Digital LMR, IT, Propagation Measurements and Models, Spectrum Research, Technology Transfer ▪ National Law Enforcement and Corrections Technology Center (NLECTC) System ▪ Cooperative Research and Development Agreements (CRADA) ▪ DoD RDT&E programs 	<ul style="list-style-type: none"> ▪ DHS/OIC ▪ ITS ▪ DOJ/National Institute of Justice (NIJ) ▪ DoC/NTIA, NIST ▪ DoD

Exhibit A3-5 presents key Federal grant initiatives related to interoperable and emergency communications.

Exhibit A3-5: Federal Grant Initiatives for Emergency Communications

Type of Initiative	Grant Program	Lead Agency
Interoperability Grant Programs	<ul style="list-style-type: none"> Public Safety Interoperable Communications (PSIC) Grant Program Interoperable Emergency Communications Grant Program (IECGP) 	NTIA DHS
National Preparedness Grant Programs (scope includes interoperable communications)	<ul style="list-style-type: none"> Homeland Security Grant Program (HSGP) <ul style="list-style-type: none"> State Homeland Security Program (SHSP) Urban Area Security Initiative (UASI) Citizen Corps Program (CCP) Metropolitan Medical Response System (MMRS) Law Enforcement Terrorism Prevention Program (LETPP) Emergency Management Performance Grant (EMPG) Assistance to Firefighters Grants (AFG) Buffer Zone Protection Plan (BZPP) Transit Security Grant Program (TSGP) Homeland Security National Training Program (HSNTP) and Competitive Training Grant Program (CTGP) 	DHS
Grant Guidance, Tools, and Assistance	<ul style="list-style-type: none"> Grant guidance materials and associated support <ul style="list-style-type: none"> SAFECOM grant guidance Authorized Equipment List (AEL) SAVER Program Technical assistance InterAgency Board (IAB), Standardized Equipment List (SEL) 	DHS DOJ, DoD, cross-governmental participants

Exhibit A3-6 presents key Federal training and exercise initiatives involving emergency communications.

Exhibit A3-6: Federal Training and Exercise Initiatives

Type of Initiative	Key Program(s)	Lead Agency
Training	Emergency Management Institute (EMI) (e.g., residential courses, independent study [e.g., NIMS, NRF], continuity of operations)	DHS
	Communications Unit Leader (COML) curriculum development	DHS/OIC, Incident Management Systems Integration Division (IMSID), National Wildfire Coordinating Group (NWCG), FEMA
Exercise	National Exercise Program (NEP)	DHS/FEMA
	Homeland Security Exercise and Evaluation Program (HSEEP)	DHS
	Top officials (TOPOFF) 4	DHS/FEMA
	Determined accord	DHS/FEMA
	National Nuclear Security Formal Exercise Program	DOE/National Nuclear Security Administration (NNSA)
	Disaster response exercises (international and national exercises)	Federal Aviation Administration (FAA)
	Hurricane preparedness tabletop exercises	DHS
	Golden Phoenix	DoD
	TICP exercises	Requirement by DHS for UASI regions

Appendix 4: DHS Organizations with Responsibilities and Programs Supporting Emergency Communications

Improving the Nation's ability to communicate effectively during emergency situations is among the most fundamental missions assigned to DHS. With passage of the *Homeland Security Act of 2002* and subsequent amendments over the last five years, DHS has assumed lead responsibility for many of the U.S. Government's most important national communications functions, while simultaneously creating new programs to meet emerging communications needs at the Federal, State, local, and tribal levels.

The consolidation of emergency communications missions, roles, and responsibilities under DHS is an important step toward coordinating and improving communications planning, preparedness, protection, crisis management, and recovery operations after September 11, 2001. DHS' communications initiatives and capabilities serve a diverse set of customers: the President; the executive branch of the Federal Government; defense and intelligence agencies; law enforcement; State, local, and tribal authorities; emergency responders; and critical infrastructure owners and operators.

For the emergency response community, OEC was established in 2007 as the focal point for developing, implementing, and coordinating interoperable and operable communications for emergency responders at all levels of government. OEC oversees three programs for improving emergency communications for Federal, State, local, and tribal agencies—the Integrated Wireless Network (IWN), the Interoperable Communications Technical Assistance Program (ICTAP), and the SAFECOM program (excluding its RDT&E and standards functions). In addition, OEC is responsible for implementing new programs and initiatives to enhance interoperable communications, including:

- **Statewide Communication Interoperability Plans (SCIP):** SCIPs are locally driven, multi-jurisdictional, and multi-disciplinary plans to address statewide interoperability. For the first time in history, all 56 States and territories have developed SCIPs, marking a critical milestone in breaking down the barriers of the past and establishing a roadmap for future interoperability. These plans address designated critical elements for statewide interoperability and must be approved by OEC for a State to qualify for grant funding through the Homeland Security Grant Program and Public Safety Interoperable Communications (PSIC) Grant Program.
- **National Communications Capabilities Report (NCCR):** The NCCR provides a framework for evaluating current emergency communications capabilities across all levels of government. The NCCR will help government officials to determine priorities and to allocate resources more effectively.
- **Emergency Communications Preparedness Center (ECPC):** The ECPC is the Federal focal point and clearinghouse for coordinating interoperability efforts among Federal departments and agencies. OEC currently chairs the ECPC Working Group, which coordinated Federal input to the NECP. The ECPC's annual strategic assessment for Congress describes the current status of Federal interoperable communications.

OEC's **Communications Assets Survey and Mapping (CASM)** tool provides an inventory and analysis of interoperability communications planning for use by emergency response agencies nationwide. The tool allows agencies to store and display data about their communications assets.

To accomplish its overall mission, OEC must coordinate with other DHS organizations that have responsibilities for ensuring communications and with other Federal departments and agencies. The following describes OEC's primary partners within DHS, including their key communications functions, programs, and responsibilities.

FEMA Disaster Emergency Communications (DEC) Division, organized under FEMA's Disaster Operations Directorate, prepares for and delivers emergency communications assistance during major disasters. FEMA DEC plays a key role in integrating and coordinating Federal disaster communications services and capabilities in FEMA regions and in the incident area. Key FEMA DEC planning activities include the following:

- **State Emergency Planning:** To support FEMA's integration role, FEMA DEC assists in the development of emergency communications plans and procedures for regions and States; supports standards and technical advancements to improve communications; and conducts training, tests, and exercises of emergency communications capabilities and procedures. FEMA DEC also provides an integration and coordination point for Federal departments and agencies that provide disaster communications capabilities and support during incidents.
- **DEC Integration Branch:** The primary responsibilities of FEMA's Communications Integration Branch (CIB) is to advance the establishment of the DEC end-state architecture and integrate FEMA DEC services with FEMA Headquarters (HQ), regions, emergency communications program offices (e.g., OEC, OIC), communications capability providers (e.g., United States Coast Guard, National Guard Bureau, USNORTHCOM), and response agencies. The CIB supports the FEMA regional offices by providing assistance and guidance in DEC planning and policies, guidance and oversight of the RECCWGs, and assistance in a disaster when the region requires such assistance.
- **DEC Tactical Branch:** The Tactical Emergency Communications Branch (TECB) of the FEMA DEC Division is composed of two key components: Mobile Emergency Response Support (MERS) Program Management and MERS Detachments. MERS provides rapidly deployable command, control, and disaster emergency communications capabilities and tactical operations and logistics support for on-scene management of disaster response activities. MERS is a key FEMA disaster response asset that plays an important role in supporting disaster response operations

The **National Communications System** (NCS) is an interagency system that brings together 24 Federal departments and agencies in a joint planning framework for National Security and Emergency Preparedness (NS/EP) telecommunications. The NCS supports the Executive Office of the President for Enduring Constitutional Government, Continuity of Operations (COOP), and Continuity of Government (COG), and delivers a suite of priority telecommunications services to national leaders. To ensure effective planning and response, the NCS manages the National Coordinating Center for Telecommunications (NCC), a public-private partnership for sharing information and coordinating response and recovery operations.

The NCS has a number of responsibilities and programs to enhance communications for the emergency response community. As the coordinator for Emergency Support Function (ESF) #2 (Communications), the NCS is responsible for ensuring that the Nation's communications infrastructure and capabilities are maintained in any emergency situation. The NCS is responsible for coordinating the planning and provisioning of NS/EP communications for the

Federal Government under all hazards, including crisis recovery and reconstitution. The NCS monitors emergency situations to determine the potential impact on existing telecommunications services and to ensure that sufficient telecommunications capability is provided to support response efforts.

The NCS also offers an array of NS/EP priority communications services and programs to support emergency response.

The Government Emergency

Telecommunications Service (GETS)

provides emergency access and priority processing on the local and long-distance

portions of the Public Switched Telephone Network (PSTN). The Wireless Priority Service (WPS) gives Federal, State, local, and critical infrastructure personnel priority access calling on cellular networks for NS/EP purposes during times of high network congestion. The Telecommunications Service Priority (TSP) Program managed by NCS gives NS/EP users priority processing of their telecommunications service requests in the event of service disruption.

The NCS SHARed RESources (SHARES) High-Frequency (HF) Radio Program provides a single interagency emergency voice and data message-handling system. SHARES brings together the assets of thousands of HF radio stations to transmit NS/EP information when normal communications are unavailable. SHARES provides the Federal government with a forum for addressing issues affecting HF radio interoperability.

The **Office for Interoperability and Compatibility** (OIC) was established in 2004 to strengthen and integrate interoperability and compatibility efforts to improve Federal, State, local, and tribal emergency response and preparedness. Managed by the Science and Technology Directorate, OIC helps coordinate interoperability issues across DHS. OIC programs and initiatives address critical interoperability and compatibility issues. Priority areas include communications, equipment, and training. Key OIC activities include:

- **Standards Acceleration:** OIC is working with NIST and the Institute for Telecommunication Sciences (ITS) to support the efforts of the emergency response community and the private sector, as they accelerate the development of the Project 25 (P25) suite of standards. P25 standards will help produce voice communications equipment that is interoperable and compatible, regardless of manufacturer. In addition to interoperability, P25 aims to promote spectral efficiency, backwards compatibility, and scalability. OIC is also partnering with emergency responders, Federal agencies, and standards development organizations, including the Organization for the Advancement of Structured Information Standards (OASIS), to accelerate the creation of data messaging standards. The EDXL Messaging Standards Initiative is a practitioner-driven, public-private partnership to create information sharing capabilities between disparate emergency response software applications, systems, and devices. The resulting Extensible Markup Language (XML) standards assist the emergency response community in sharing data seamlessly and securely while responding to an incident.
- **Compliance Assessment:** In collaboration with its partners, OIC is establishing a P25 Compliance Assessment Program (CAP) to provide demonstrable evidence of P25 product compliance. P25 CAP will improve adoption of P25 standards in manufacturer systems while creating a mechanism enabling procurement officers and the emergency response community to confidently purchase and use P25 compliant products. The P25 CAP program ensures that emergency response equipment is compliant, thus improving interoperable communications. It also stimulates competition among manufacturers, which results in more affordable technologies for the emergency response community.

- **Technology Demonstrations:** OIC conducts Technology Demonstration Projects across the Nation to test and demonstrate technologies in real-world environments, including data and video, and strategically assess results.
- **Communications Unit Leader (COML) Training:** OIC developed the COML curriculum to establish a standardized course of training for communications in a Type III incident. The Type III COML course trains emergency responders on how to be radio communications leaders during all-hazards emergency operations—significantly improving communications across multiple jurisdictions and disciplines responding to an incident. The course was delivered to the National Incident Management System (NIMS) Incident Management Systems Integration Division (IMSID) and was accepted as NIMS compliant. Through the development of the Type III COML course, DHS will provide a tool for training communications unit leaders and their command and general staff to perform the critical mission of managing interagency and cross-disciplinary communications during all-hazards incidents.

OEC and **U.S. Customs and Border Protection** (CBP) are collaborating on a series of communications projects to improve interoperability for law enforcement and other first responders along the Canadian and Mexican borders. CBP operates and maintains various command, control, communications, and intelligence (C3I) assets that could be used during a crisis. These include very high frequency (VHF) and high frequency (HF) national tactical radio networks and several local communications centers.

The Secure Border Initiative (SBI) is a project to control U.S. borders and reduce illegal immigration. The **SBINet** is a key piece of SBI that promotes real-time communications among Border Patrol agents. Systems such as the Treasury Enforcement Communications System are also used to coordinate between CBP's Office of Border Patrol and ICE's Office of Investigations.

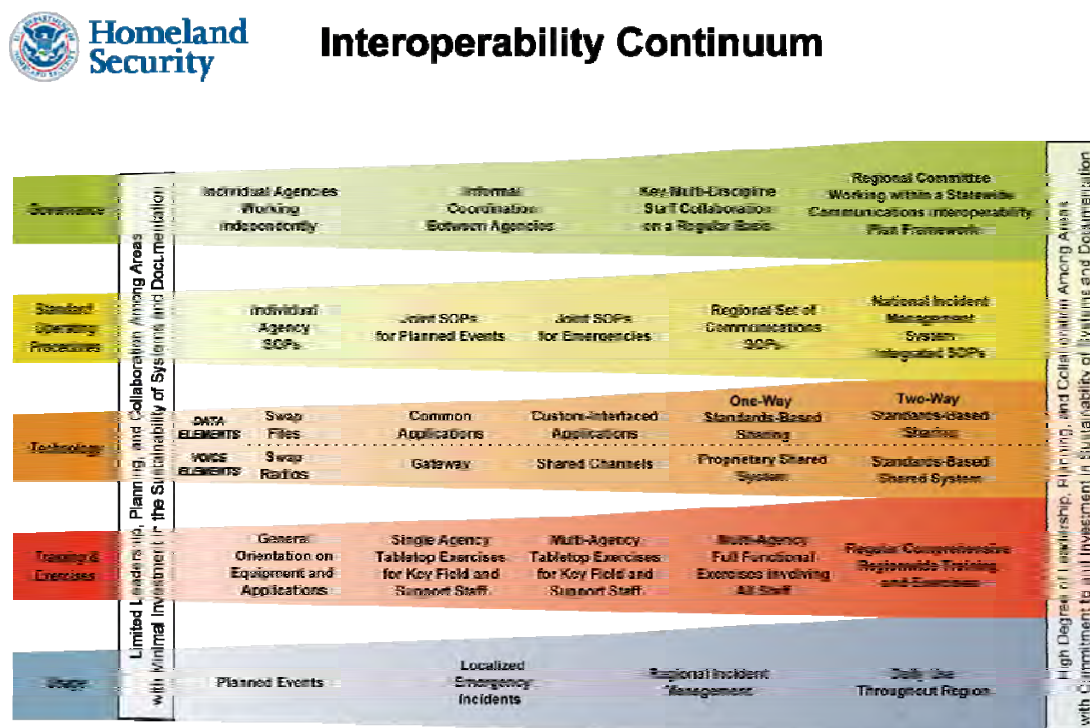
During all crises, **U.S. Bureau of Immigration and Customs Enforcement** (ICE) uses many public and government-operated systems to communicate with other executive branch agencies, elements of the Intelligence Community, and Federal, State, and local law enforcement agencies. In an effort to improve coordination and interoperability between CBP and ICE, DHS established the Secure Border Initiative (SBI) to link a number of organizational components with communications and other technology for a comprehensive border enforcement approach.

The **U.S. Coast Guard** maintains a disciplined command and control (C2) communications system that consists of several integrated components that are designed to be interoperable with DoD components in times of national emergency and/or war. The U.S. Coast Guard plays an active role in Federal interoperability forums, including the ECPC and Federal Partnership for Interoperable Communications (FPIC).

Appendix 5: The SAFECOM Interoperability Continuum

The SAFECOM Interoperability Continuum, developed with practitioner input from the DHS' SAFECOM program, is designed to help emergency response agencies and policymakers plan and implement interoperability solutions for data and voice communications. The tool identifies five critical elements that must be addressed to achieve a sophisticated interoperability solution: governance, standard operating procedures (SOP), technology, training and exercises, and usage of interoperable communications. Jurisdictions across the Nation can use the SAFECOM Interoperability Continuum to track their progress in strengthening interoperable communications.

Exhibit A5-1: SAFECOM Interoperability Continuum



SAFECOM Interoperability Continuum Elements

Interoperability is a multidimensional challenge. To gain a true picture of a jurisdiction's interoperability capabilities, its progress in each of the five interdependent elements must be considered. For example, when a jurisdiction procures new equipment, it also should plan and conduct training and exercises to ensure that it make the best use of the equipment. What constitutes optimal interoperability is determined by the individual needs of an agency or jurisdiction. The SAFECOM Interoperability Continuum is a guide for jurisdictions when they are considering new interoperability solution, either because their needs have changed or because additional funding has become available. An evolving tool, the SAFECOM Interoperability Continuum supports the *National Preparedness Strategy* and aligns with national frameworks, including, but not limited to, the National Response Framework, NIMS, the National Emergency Communications Plan, and the National Communications Baseline Assessment. To maximize the SAFECOM Interoperability Continuum's value to the emergency response community, SAFECOM will regularly update the tool using a consensus process that involves practitioners, technical experts, and representatives from Federal, State, local, and tribal agencies.

Appendix 6: NECP Stakeholder Coordination

OEC used a three-phased approach to develop the NECP that relied on stakeholder involvement at each stage: Data Gathering and Analysis, Strategy Development, and Plan Development and Review.

Exhibit A6-1: National Emergency Communications Plan Approach



Stakeholder Outreach and Coordination

OEC considered stakeholder involvement the single most important element in the NECP development process. In accordance with Title XVIII requirements, OEC was directed to develop the NECP in cooperation with Federal departments and agencies; State, local, and tribal governments; emergency response providers; and the private sector. To engage this diverse group of stakeholders, OEC established a cross-governmental focus group of emergency response personnel and coordinated with existing councils, committees, associations, and partnerships that represent the emergency response community.

At the Federal level, OEC coordinated with the Emergency Communications Preparedness Center (ECPC) and the Federal Partnership for Interoperable Communications (FPIC). At the State and local levels, OEC worked closely with the SAFECOM Executive Committee/Emergency Response Council (EC/ERC) and the National Public Safety Telecommunications Council (NPSTC). Private sector involvement was coordinated through the Critical Infrastructure Partnership Advisory Council (CIPAC), which included representatives from the Communications Sector Coordinating Council, the Emergency Services Coordinating Council, the Information Technology Coordination Council, and the State, local, territorial, and Tribal Government Coordinating Council.

Phase 1: Data Gathering and Analysis

As a key first phase in the development process, OEC drew heavily from a foundation of emergency communications documentation and initiatives. During this data gathering and analysis phase, OEC worked in coordination with stakeholders to identify key emergency communications policies, strategies, plans, and reports for consideration. OEC then analyzed findings, lessons learned, issues, gaps, priorities, and recommendations from numerous sources, including the NCCR; SCIPs; the 2006 *National Interoperability Baseline Survey* and numerous after-action reports from September 11, 2001, Hurricane Katrina and other recent natural and man-made incidents. These source documents were key drivers for the NECP's assessment of the current state-of-emergency communications and also helped shape the NECP's strategic

goals, objectives, and initiatives. A list of the key documentation used to develop the NECP is presented in Appendix 7.

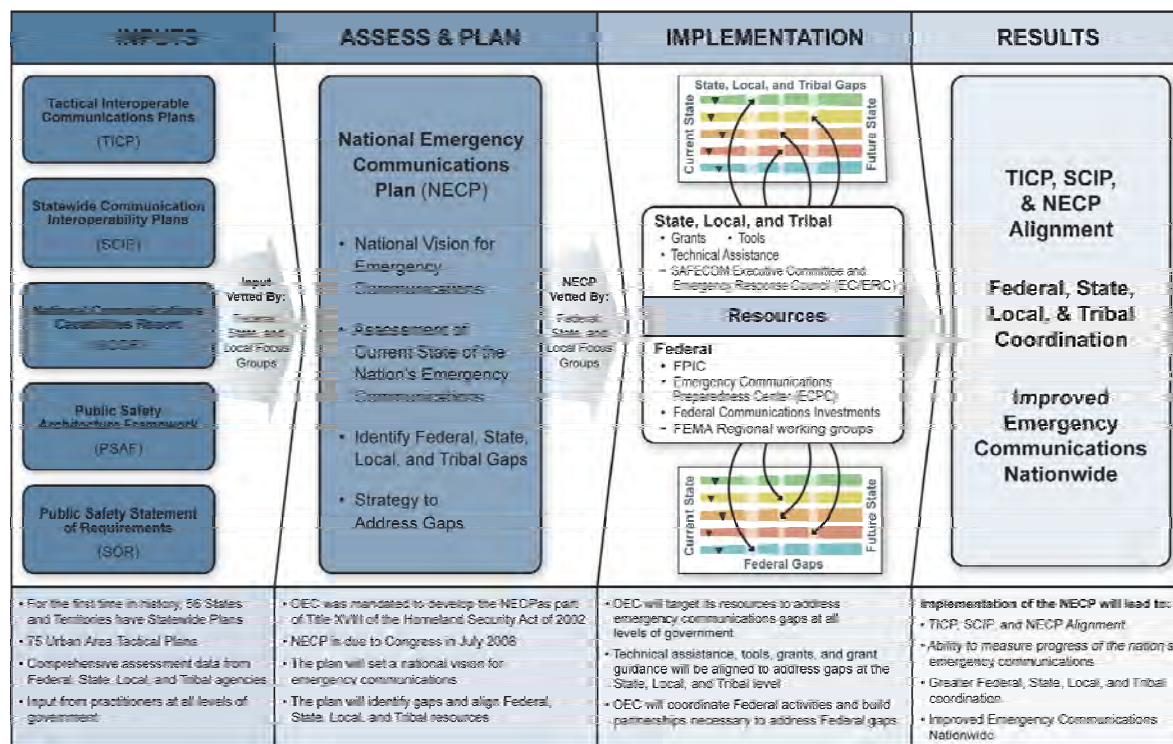
Phase 2: Strategy Development

Next, OEC worked closely with stakeholders to develop the high-level strategy for the NECP. Building on the legislative requirements, OEC used information gleaned from the data gathering and analysis effort, as well as stakeholder involvement, to craft the NECP's overarching strategic goals and priority initiatives. OEC worked with key coordination bodies (e.g., EC/ERC, ECPC, and NECP Focus Group) to develop and prioritize the specific near- and long-term emergency communications actions needed to implement these initiatives.

Phase 3: Plan Development and Review

During the final phases of NECP development, OEC conducted extensive outreach efforts to ensure that both DHS and external public and private sector stakeholders had an opportunity to review the document. Exhibit A6-2 illustrates the key steps in the evolution of the NECP—the key inputs and the considerations that shaped its goals and initiatives—and also demonstrates how OEC will work with the emergency response community to use the plan as a framework to improve its communications planning and capabilities as well as overall coordination nationwide.

Exhibit A6-2: Key Steps in Evolution of the NECP



The success of the NECP requires the commitment of all emergency response disciplines at all levels of government. Achieving its goals and priority objectives will require coordination across geographical, political, and cultural jurisdictions and boundaries. OEC's current levers and incentives for driving NECP implementation include the provision of technical assistance to State, regional, local and tribal government officials; grant guidance and the coordination of DHS administered grant programs (such as the IECGP); and the coordination of Federal

activities through the ECPC and FPIC. In addition, OEC will use statutory reporting requirements to monitor and report on progress towards implementing the NECP (e.g., State annual reports under the IECGP, the RECCWG annual reports, the ECPC annual strategic assessment, and OEC's assessment and biennial progress reports).

Appendix 7: NECP Source Documents

State, Local, and Tribal

National Governors Association 2007 State Homeland Security Directors Survey. National Governors Association. December 2007.

Emergency Response Council Agreements on a Nationwide Plan for Interoperable Communications. SAFECOM Emergency Response Council (ERC) (with support from the Office of Emergency Communications and the Office for Interoperability and Compatibility). July 2007.

Public safety interoperable communications topped the list of homeland security advisors' concerns in 2007, as States continue to work to ensure that first responders from various agencies, jurisdictions, and levels of government can speak to each other during emergencies or at the scene of a disaster.
Source: National Governors Association 2007 State Homeland Security Directors Survey

Indian Country Border Security and Tribal Interoperability Pilot Program: The Importance of Tribes at the Frontlines of Border and Homeland Security (TBS Pilot Program) Final Report. The National Native American Law Enforcement Association; the National Congress of American Indians. March 2006.

National Associations, Task Forces, Advisory Committees, and Panels

Joint Advisory Committee on Communications Capabilities of Emergency Medical and Public Health Care Facilities Report to Congress. February 2008.

Association of Public-Safety Communications Officials-International (APCO) Homeland Security & Preparedness Version 2.1.
APCO International. September 2007.

National Security Telecommunications Advisory Committee Report on Emergency Communications and Interoperability. The President's National Security Telecommunications Advisory Committee. January 2007.

*IP-based networks enable first responders to have the **flexibility and tools they need for effective response** and ... modernize their existing radio networks so they work together with other existing and future communications networks and devices.*

Source: The Joint Advisory Committee on Communications Capabilities of Emergency Medical and Public Health Care Facilities, February 2008

FCC Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks. Federal Communications Commission Industry Panel. June 2006

Why Can't We Talk? National Task Force on Interoperability. February 2003.

Final Report of the Public Safety Wireless Advisory Committee to the Federal Communications Commission. September 1996.

Federal Government Reports, Assessments, Plans, and Strategies

Congress, White House, and Special Commissions

The National Strategy for Homeland Security. White House Homeland Security Council. October 2007.

The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina. Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, U.S. House of Representatives. February 2006.

The Federal Response to Hurricane Katrina: Lessons Learned. White House Homeland Security Advisor. February 2006.

The 9-11 Commission Report. The National Commission on Terrorist Attacks. July 2004.

*The nation's emergency communications systems "must be **resilient**, either able to withstand destructive forces regardless of cause or sufficiently **redundant** to suffer damage and remain reliable.*

Source: The National Strategy for Homeland Security, revised October 2007

*Communications challenges across the Gulf Coast region in Hurricane Katrina's wake were more a problem of basic **operability**, than one of equipment or system **interoperability**.*

Source: Federal Response to Hurricane Katrina: Lessons Learned, February 2006

The Department of Homeland Security

The National Communications Capabilities Report. Department of Homeland Security, Office of Emergency Communications. March 2008.

Target Capabilities List: A Companion to the National Preparedness Guideline. Department of Homeland Security. September 2007.

National Incident Management System (NIMS). Department of Homeland Security. August 2007.

The National Infrastructure Protection Plan (NIPP): Communications Sector Specific Plan. Department of Homeland Security, Office of Infrastructure Protection. May 2007.

The National Infrastructure Protection Plan: Emergency Services. Department of Homeland Security, Office of Infrastructure Protection. May 2007.

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2006 SAFECOM Survey—

- 66% of public agencies use interoperability to some degree
- Interoperability at local levels tends to be more advanced than between State and local agencies

TICP Scorecards—

- 68% of urban metro areas had established regional interoperability
- 80% of urban/metro areas use shared systems and/or shared channels daily to provide interoperability

Appendix 8: Glossary of Terms

Agreements. Governance capability sub-element encompassing mechanisms approved to govern interagency coordination and the use of interoperable emergency communications solutions.

Continuity of Communications. Ability of emergency response agencies to maintain communications capabilities when primary infrastructure is damaged or destroyed.

Cross-Discipline. Involving emergency response providers from different disciplines (e.g., police, fire, EMS).

Cross-Jurisdiction. Involving emergency response providers from different jurisdictions (e.g., across State, county, or regional boundaries).

Decision-Making Groups. Governance capability sub-element that refers to a collection of public safety practitioners and leaders who pool their expertise to improve interoperable emergency communications.

Emergency Communications. Means and methods for transmitting and receiving information necessary for successful incident management, when needed and as authorized.

Exercises. Training and exercises capability sub-element encompassing emergency scenarios developed to establish proficiency in identifying communications resources needed and available, implementing processes and procedures, and leveraging solutions to effectively establish and maintain communications.

Funding. Governance capability sub-element encompassing the levels and reliability of financial resources available for one-time capital investments and recurring operating costs in support of interoperable emergency communications.

Frequency of Use and Familiarity. Usage capability sub-element encompassing the level of familiarity, proficiency, and frequency with which interoperable emergency communications solutions are activated and used.

Governance. Capability element that includes government leadership, decision-making groups, agreements, funding, and strategic planning.

Interoperability. Ability of emergency responders to communicate among jurisdictions, disciplines, frequency bands, and levels of government as needed and as authorized. System operability is required for system interoperability.

Jurisdiction. Geographical, political, or system boundary as defined by each State.

Leadership. Governance capability sub-element encompassing the involvement of government leaders and their commitment to ensuring the political and fiscal priority of interoperable emergency communications.

Operability. Ability of emergency responders to establish and sustain communications in support of mission operations.

Operability Assurance. Process of ensuring that emergency response providers and government officials can continue to communicate in the event of natural disasters, acts of terrorism, or other man-made disasters.

Policies, Practices, and Procedures. Standard operating procedures sub-element encompassing the range of formal and informal communications policies, practices, and procedures.

Private Sector Emergency Response Providers. Businesses and other nongovernmental organizations that provide emergency services in support of major incidents.

Response Level Emergency Communications. Capacity of individuals with primary operational leadership responsibility³³ to manage resources and make timely decisions during a multi-agency incident without technical or procedural communications impediments. In addition to communicating to first-level subordinates in the field, the Operations Section Chief should be able to communicate upwards to the incident command level³⁴ (e.g. between the Operations Section Chief and Incident Command). As the incident grows and transitions, Incident Command/Unified Command can move off scene and may require communication between Incident Command and off-scene EOCs, dispatch centers, and other support groups as appropriate.

Routine Incidents. Emergencies that happen on a regular basis. Examples of these types of events are further explained in the Usage element of the SAFECOM Interoperability Continuum as planned events, localized emergency incidents, regional incident management (interstate or intrastate), and daily use throughout the region.

Significant Incidents. Interoperability and continuity of communications are the emphasis for response-level emergency communications during significant events. *Homeland Security Presidential Directive 8: National Preparedness* (HSPD-8) sets forth 15 national planning scenarios that highlight a plausible range of significant events, such as terrorist attacks, major disasters, and other emergencies, that pose the greatest risk to the Nation. Any of these 15 scenarios should be considered when planning for a significant incident in which all major emergency communications infrastructure is destroyed.

Standard Operating Procedures. Capability element that includes the range of informal and formal policies, practices, and procedures that guide emergency responder interactions and the use of interoperable communications solutions.

Strategic Planning. Governance capability sub-element encompassing the disciplined efforts and processes to establish long-term goals and objectives for interoperable emergency communications.

System Functionality. Technology capability sub-element encompassing the range of fixed and mobile/deployable systems and equipment used for interoperable emergency communications and associated voice, data, and video capabilities.

³³ As defined in the National Incident Command System 200 - Unit 2 - Leadership and Management.

³⁴ As defined in the National Incident Management System, FEMA 501/Draft August 2007, p.47.

System Performance. Technology capability sub-element encompassing the availability, reliability, and scalability of communications systems and equipment.

Technology. Capability element that encompasses the systems and equipment that enable emergency responders to share information efficiently and securely during an emergency incident, and addresses the functionality, performance, interoperability, and continuity capabilities of those systems and equipment.

Training. Training and exercises capability sub-element encompassing the scope and frequency of educational activities related to interoperable emergency communications.

Training and Exercises. Capability element that includes educational activities and simulations conducted to help ensure that emergency responders know their roles and are properly prepared to respond to a wide range of emergencies.

Usage. Capability element that refers to the frequency and familiarity with which emergency responders use interoperable emergency communications solutions.

Appendix 9: Acronyms

AEL	Authorized Equipment List
AES	Advanced Encryption Standard
AFG	Assistance to Firefighters Grants
APCO	Association of Public-Safety Communications Officials–International
APIC	APCO Project 25 Interface Committee
AVL	Automatic Vehicle Location
BBTG	APIC Broadband Task Group
BIA	Bureau of Indian Affairs
BORTAC	Border Tactical Communications
CAI	Common Air Interface
CAP	Common Alerting Protocol
CAP	Compliance Assessment Program
CASM	Communications Asset Survey and Mapping Tool
CBP	Customs and Border Protection
CCI	Command, Control and Interoperability
CCP	Citizen Corps Program
CDMA	Code Division Multiple Access
CFR	Code of Federal Regulations
CIPAC	Critical Infrastructure Partnership Advisory Council
COG	Continuity of Government
COML	Communications Unit Leader
COMT	Communications Unit Technicians
COOP	Continuity of Operations
COP	Committee of Principals
COPS	Community Oriented Policing Services
CTCSS	Continuous Tone Controlled Squelch System
DEC	Disaster Emergency Communications
DHS	Department of Homeland Security
DIRS	Disaster Information Reporting System
DM	Disaster Management
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOJ	Department of Justice

DOT	Department of Transportation
DSCA	Defense Support to Civil Authorities
EC/ERC	Executive Committee/Emergency Response Council (SAFECOM)
ECPC	Emergency Communications Preparedness Center
EDXL	Emergency Data Exchange Language
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
ESF	Emergency Support Function
FAS	Frequency Assignment Subcommittee
FBI	Federal Bureau of Investigation
FCC	Federal Communications Commission
FCD	Federal Continuity Directive
FDMA	Frequency Division Multiple Access
FEMA	Federal Emergency Management Agency
FIPS	Federal Information Processing Standard
FLEWUG	Federal Law Enforcement Wireless Users Group
FM	Frequency Modulation
FPIC	Federal Partnership for Interoperable Communications
FY	Fiscal Year
G&T	Grants and Training
GETS	Government Emergency Telecommunications Service
GPS	Global Positioning System
GSM	Global System for Mobile Communications
HAZMAT	Hazardous Material
HF	High Frequency
HSEEP	Homeland Security Exercise and Evaluation Program
HSGP	Homeland Security Grant Program
HSPD	Homeland Security Presidential Directive
Hz	Hertz
ICC	Interoperable Communications Committee
ICE	Immigration and Customs Enforcement
ICP	Incident Command Post
ICS	Incident Command System
ICTAP	Interoperable Communications Technical Assistance Program
iDEN	Integrated Digital Enhanced Network

IECGP	Interoperable Emergency Communication Grant Program
IGA	Intergovernmental Agreement
IMSID	Incident Management Systems Integration Division
IP	Internet Protocol
IR	Incident Response
IRAC	Interdepartment Radio Advisory Committee
IT	Information Technology
IWN	Integrated Wireless Network
JISCC	Joint Incident Site Communications Capability
JITC	Joint Interoperability Test Command
JNN	Joint Network Nodes
JTRS	Joint Tactical Radio System
kHz	Kilohertz
LE	Law Enforcement
LEPC	Local Emergency Planning Committee
LETPP	Law Enforcement Terrorism Prevention Program
LMR	Land Mobile Radio
MAA	Mutual Aid Agreement
MERS	Mobile Emergency Response Support
MESA	Mobility for Emergency and Safety Applications
MHz	Megahertz
MMRS	Metropolitan Medical Response System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAC	Network Access Code
NCC	National Coordinating Center for Telecommunications
NCCC	National Command and Coordination Capability
NCCR	National Communications Capabilities Report
NCR	National Capital Region
NCS	National Communications System
NCSD	National Communications System Directive
NECP	National Emergency Communications Plan
NERCS	National Emergency Responder Credentialing System
NGB	National Guard Bureau
NGO	Nongovernmental Organization
NIC	National Integration Center
NIEM	National Information Exchange Model

NIFOG	National Interoperability Field Operations Guide
NIJ	National Institute of Justice
NIMS	National Incident Management System
NIPP	National Infrastructure Protection Plan
NIST	National Institute of Standards and Technology
NORTHCOM	U.S. Northern Command
NPSPAC	National Public Safety Planning Advisory Committee
NPSTC	National Public Safety Telecommunications Council
NRF	National Response Framework
NRP	National Response Plan
NS/EP	National Security and Emergency Preparedness
NSTAC	National Security Telecommunications Advisory Committee
NTIA	National Telecommunications and Information Administration
NVOAD	National Voluntary Organizations Active in Disasters
O&M	Operations and Maintenance
OCIO	Office of the Chief Information Officer
OEC	Office of Emergency Communications
OGC	Office of General Counsel
OIC	Office for Interoperability and Compatibility
P25	Project 25
PDA	Personal Digital Assistant
PSAP	Public Safety Answering Point
PSIC	Public Safety Interoperable Communications Grant Program
PSWAC	Public Safety Wireless Advisory Committee
PSWN	Public Safety Wireless Network
PTT	Push-to-Talk
QoS	Quality of Service
R&D	Research and Development
RADO	Radio Operator
RDT&E	Research, Development, Testing, and Evaluation
RECCWG	Regional Emergency Communications Coordination Working Group
RF	Radio Frequency
RoIP	Radio over Internet Protocol
SBI	Secure Border Initiative
SCIP	Statewide Communication Interoperability Plan
SdoC	Supplier's Declaration of Compliance
SDR	Software Defined Radio

SEL	Standardized Equipment List
SHARES	Shared Resources Program
SHSP	State Homeland Security Program
SIEC	Statewide Interoperability Executive Committee
SME	Subject Matter Expert
SOP	Standard Operating Procedure
STR	Strategic Technology Reserve
SWAT	Special Weapons and Tactics
TCL	Target Capabilities List
TDMA	Time Division Multiple Access
TIA	Telecommunications Industry Association
TICP	Tactical Interoperable Communications Plan
TOPOFF	Top Officials
TSP	Telecommunications Service Priority
UA	Urban Areas
UASI	Urban Area Security Initiative
UCALL	UHF Calling Channel
UHF	Ultra High Frequency
ULS	Universal Licensing System
UPS	Uninterruptible Power Supply
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USFS	United States Forest Service
UTAC	UHF Talk Around Channel
VCALL	VHF Calling Channel
VA	Department of Veteran Affairs
VHF	Very High Frequency
VoIP	Voice over Internet Protocol
VTAC	VHF Talk Around Channel
WIN-T	Warfighter Information Network - Tactical
WPS	Wireless Priority Service