

**COMMISSION ON STATE
EMERGENCY COMMUNICATIONS**



**STRATEGIC PLAN FOR STATEWIDE 9-1-1
SERVICE**

FISCAL YEARS 2021 - 2025

July 2020

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I. PURPOSE

Section 771.055 of the Health and Safety Code requires the Commission on State Emergency Communications (herein the Commission or CSEC) to prepare for each state fiscal biennium a strategic plan for statewide 9-1-1 service for the following five state fiscal years. This document is submitted in fulfillment of that requirement.

The strategic plan must:

- (1) include a survey of the current performance, efficiency, and degree of implementation of emergency communications services throughout the whole state;
- (2) provide an assessment of the progress made toward meeting the goals and objectives of the previous strategic plan and a summary of the total expenditures for emergency communications services in this state;
- (3) provide a strategic direction for emergency communications services;
- (4) establish goals and objectives relating to emergency communications;
- (5) provide long-range policy guidelines for emergency communications;
- (6) identify major issues relating to improving emergency communications;
- (7) identify priorities for this state's emergency communications system; and
- (8) detail the financial performance of each regional planning commission in implementing emergency communications service including an accounting of administrative expenses.

II. SURVEY OF 9-1-1 SERVICE IN TEXAS

Per statute, 9-1-1 is defined as a communications service that connects users to a Public safety Answering Point (PSAP) through a 9-1-1 system. In Texas, 9-1-1 service is provided by a mix of 9-1-1 Entities consisting of 56 Emergency Communication Districts (ECDs)¹ and the state program administered by the CSEC and operated by 21 Regional Planning Commissions (RPCs). Texas Health and Safety Code, Chapter 771, is the statutory basis for the CSEC/RPC 9-1-1 program. Under the program, the CSEC contracts with the RPCs for the provision of 9-1-1 service in those areas of the state where 9-1-1 service is not provided by an ECD. The statewide program is well established, and the CSEC and the RPCs work together to further develop and maintain access to efficient and effective statewide 9-1-1 services. Figure 1 – *Map of Texas 9-1-1 Service Entities* - illustrates the geographical service areas of the 9-1-1 Entities.

¹ The 9-1-1 administrative entities consist of fifty-six (56) Emergency Communication Districts (ECDs) and the state program administered by the CSEC and operated by twenty-one (21) Regional Planning Commissions (RPCs). Twenty-seven (27) ECDs have been formed and operate under the authority of Health and Safety Code Chapter 772. Twenty-eight (28) municipalities and one (1) county that are recognized as ECDs in Health and Safety Code § 771.001(3)(A) operate 9-1-1 systems that are independent of the state's system. 9-1-1 service in the incorporated portion of Dallas County is provided by ECDs, or pursuant to the North Central Texas Council of Governments' Regional 9-1-1 Plan. 9-1-1 service in the unincorporated portion of Dallas County is provided by the Dallas County Sheriff's Office.

DEGREE OF IMPLEMENTATION

The following levels of 9-1-1 service have been implemented by all 9-1-1 Entities in all areas of the state.

- Basic 9-1-1 provides the caller the ability to reach a PSAP by dialing the digits 9- 1-1
- Enhanced 9-1-1 (E9-1-1) adds the following three key capabilities to basic 9-1-1 service, and has been implemented throughout the state for landline, wireless and voice over internet protocol (VoIP) service.
 - Selective routing provides intelligence and flexibility in the routing of calls to the correct, predetermined PSAP;
 - Automatic Number Identification (ANI) provides the caller’s telephone number so call takers can call back if the call is disconnected; and
 - Automatic Location Identification (ALI) provides call takers with the caller’s location or address, which assists in the dispatch of emergency services.

CURRENT PERFORMANCE

Citizens rely on 9-1-1 to reach assistance in times of individual crisis or major disaster. The mission of the CSEC is to preserve and enhance public safety and health in Texas through reliable access to emergency communications services. In accomplishing our mission, the CSEC collaborates with regional and local governments and other state agencies to promote stewardship and accountability, set high standards, and foster efficient emergency communications services.

Performance is reflected by the number of calls to 9-1-1.

9-1-1 Call Volume for Calendar Year 2019

- 20,205,540 per year
 - 55,358 per day
 - 2,307 per hour

Type of Service	Total 911 Calls
Wireline	1,823,683
Wireless	16,791,906
VoIP	863,363
Other	577,349
Total	20,205,540

Total is greater than the combination of Wireline, Wireless, VoIP, and Other due to some municipal ECDs either not able to track or not reporting 9-1-1 calls by call type.

Limitations on performance exist. The performance of the current 9-1-1 infrastructure is subject to inherent limitations due to its age and design. The existing 9-1-1 infrastructure is based on wireline technologies established decades ago and uses outdated systems to deliver 9-1-1 calls and location information to the PSAPs. While wireless phone service is assumed to be ubiquitous, it is often not reliable or available at all in sparsely populated rural areas of the state which prevents the ability to dial 9-1-1. The current 9-1-1 system cannot accept digital media such as text messages, photographs or video, all of which are mainstream technologies used by the public today. Text to 9-1-1 has been broadly implemented but it uses an interim solution and relies upon external databases and systems to deliver the texts to 9-1-1. The current 9-1-1 system is not interoperable with emergency responder public safety communications systems.

EFFICIENCY

The technology supporting the current 9-1-1 system is reaching end-of-life and will soon be obsolete. The national telecommunications infrastructure is changing as is the way the public communicates and adopts new technology. These changes have a direct impact on the ability of 9-1-1 service to support and serve the public. As more new digital communications technologies are introduced that cannot access the existing 9-1-1 system, the effectiveness and efficiency of 9-1-1 service will erode. The cost of supporting and maintaining the aging 9-1-1 infrastructure, if possible, will increase.

Recent actions by the Federal Communications Commission (FCC) will require the wireless carriers to offer real time text messages to 9-1-1 to better serve the needs of the deaf and hard of hearing, as well as those “callers” that would put themselves in danger by speaking aloud to a 9-1-1 call taker. Texas’ major telephone companies that currently provide the 9-1-1 infrastructure have begun planning to decommission and replace their aging network and equipment.

Incorporating these advanced capabilities will require major changes to the 9-1-1 infrastructure. A digital replacement of the current analog 9-1-1 system is needed to leverage and increase the efficiency of the existing 9-1-1 system. The new digital system is known as Next Generation 9-1-1, or NG9-1-1.

III. ASSESSMENT OF PROGRESS ON MEETING THE GOALS AND OBJECTIVES OF 2019 - 2023 PLAN

The goal of the previous biennium’s plan was to establish a more effective, efficient and resilient 9-1-1 system for providing 9-1-1 service. The following objectives were established to obtain the goal. The progress made to-date on each objective is noted.

Goal: Establish a more effective, efficient, resilient, and enhanced Texas Next Generation 9-1-1 (NG9-1-1) System.

Objectives (in priority order):

1. Maintain the present level of 9-1-1 service while transitioning to NG9-1-1.
 - Status: The present level of 9-1-1 service has been maintained.
2. Continue to Implement Text to 9-1-1 service in areas of Texas seeking to do so.
 - Status: 89% of Texas PSAPs have implemented Text to 9-1-1
 - 507 of 572 PSAPs have implemented Text to 9-1-1
3. Plan and deploy Local, Regional, and Multi-Regional Emergency Services Internet-Protocol Networks (ESInet).
 - Status: 64% of Texas 9-1-1 Entities have implemented ESInets.
 - 36 of 56 9-1-1 Entities have deployed ESInets connecting PSAPs in their service areas.
4. Plan and deploy NG9-1-1 Core Services (NGCS) to replace existing legacy 9-1-1 selective routers.
 - Status: The 9-1-1 Entities are beginning the process of deploying NG9-1-1 Core Services in their service areas.
 - 21 of 56 9-1-1 Entities have procured and/or executed a contract for NGCS
5. CSEC will establish an optional cooperative purchase contract for vendor provided managed services offering for NG9-1-1 Core Services.
 - Status: Complete
CSEC worked with DIR to establish a Next Generation 9-1-1 managed service offering under the TEX-AN contract.
6. Develop an outreach and awareness plan to educate elected officials and policymakers about NG9-1-1.
 - Status: Incomplete and on-going
7. Develop and recommend standards for interoperability and interconnectivity between NG9-1-1 systems.
 - Status: In progress and on-going

IV. SUMMARY OF TOTAL EXPENDITURES

The annual cost for calendar year 2019 for emergency communications services for the state of Texas was \$224,756,152. This figure assumes that 9-1-1 fee collections in the ECD areas and appropriated 9-1-1 fees and equalization surcharge for the CSEC state 9-1-1 program equal expenditures. Fee collections were reported to the FCC in July of 2020 as mandated by the federal New and Emerging Technologies Improvement Act of 2008. Reported collections are summarized as follows:²

Service Type	Total Amount Collected (\$)
Wireline	\$65,542,838
Wireless	\$121,099,244
Prepaid Wireless	\$18,751,776
Voice Over Internet Protocol (VoIP)	Amount included in Wireline collections
Other (State Equalization Surcharge)	\$19,362,294
Total	\$224,756,152

² The difference between costs and collections is due to CSEC being appropriated more funds for 9-1-1 service than the amount collected during the same period.

V. MAJOR ISSUES RELATING TO IMPROVING 9-1-1 SERVICE IN TEXAS

The current 9-1-1 system is approaching the end of its useful life. It uses legacy technology to deliver 9-1-1 calls and location data for landline voice, and landline teletype/telecommunications device for the deaf (TTY/TDD); and “bolted on” additional systems to deliver, wireless/cellular voice, and VoIP 9-1-1 to the Public Safety Answering Point (PSAP). Each introduction of a new access technology (e.g., wireless, text messaging) or expansion of system functions (e.g., determining the location of a caller or emergency situation) requires significant engineering and system modifications. The existing system is based on technologies that were established decades ago and is a barrier to creating an integrated emergency call management system that would have the ability to exchange voice, data, text, photographs and live video through the 9-1-1 emergency communications center. These capabilities would assist law enforcement, fire departments, and emergency medical services in tailoring their response to conditions at the scene of the emergency.

NG9-1-1 systems would also provide the ability to reroute emergency calls quickly and easily to another call center when the primary answering point is unavailable or overloaded. The incorporation of these advanced capabilities would no doubt enhance the ability to provide more efficient, effective, and dynamic emergency responses; however, major changes will be required in the 9-1-1 system.

The major issues framing the necessary improvements and the future of 9-1-1 service in Texas and the nation are:

KEEPING UP WITH CHANGING TECHNOLOGY

Consumer calling devices and modes of communication continue to evolve, with changes measured in weeks and months. Changes to 9-1-1 systems seem to be measured in years. That differential can preclude callers from being able to access 9-1-1 at a critical time. As an example, use of text messaging would be the preferred method of communication during a domestic violence or active shooter incident, when speaking aloud would endanger the caller. Short of another “bolt-on” solution, there is no way for text messages to directly access the 9-1-1 system with the analog technology in place currently in most of the regions of the state.

SYSTEM VULNERABILITIES AND POTENTIAL SINGLE POINTS OF FAILURE

Security breaches to major corporations as well as all levels of government, underscore security risks to all types of mission critical networks, including 9-1-1. Lack of redundancy and diversity in 9-1-1 networks can impact their reliability. Outage of a single key network element can result in a service outage over a widespread area.

Additionally, 9-1-1 systems are vulnerable to outage in the event of major manmade and natural disasters. Hurricanes have an immense impact on large areas of the Texas coast, and the current, manual, method of rerouting 9-1-1 calls is insufficient to support the emergency communications needs. Isolated 9-1-1 outages occur as a result of inadvertent acts such as the cutting of a buried cable by a construction crew.

Going forward, additional resources will be needed to comply with new requirements for enhanced cybersecurity planning, training, risk assessments and risk mitigation activities for the agency operations as well as 9-1-1 and Poison Control programs. Texas Statute requires each state agency to submit a security plan to the Department of Information Resources (DIR) in October of each even-numbered year. Security planning involves developing security policies and controls, implementing tools and techniques to aid in security across five concurrent and continuous functions: Identify, Protect, Detect, Respond, and Recover. This requirement has direct implications on two CSEC initiatives, and also may impact RPC and 9-1-1 District technology initiatives.

LOST OPPORTUNITIES TO IMPROVE EMERGENCY RESPONSE

Many newer calling devices incorporate features that can generate additional data, such as imagery or advanced telematics such as automatic crash information from OnStar and Ford Sync – type services that could be useful to call takers or emergency responders in tailoring the response to conditions. Additionally, information like building plans, which could be of assistance to law enforcement or fire fighters, is readily available in electronic form. However, little information beyond a voice call can be sent via the current 9-1-1 systems.

The inability to interoperate with other public safety communications systems can result in less than adequate customer service to the citizens of Texas. Inter-regional radio interoperability and the coming of a nationwide public safety broadband network, also known as FirstNet, illustrates and emphasizes the need for 9-1-1 to interoperate with other systems in the emergency communications ecosystem.

PREDICTABLE AND ADEQUATE LEVELS OF FUNDING

CSEC and the 9-1-1 Entities face challenges in fitting emergency communication services into existing funding mechanisms. With the rapid and ever-increasing advent of new communications technologies, current funding approaches that simply assess fees on end-user devices, access lines, or as a percentage of the costs for services, administered largely by traditional communication service providers may no longer be effective, efficient or sufficient.

To mitigate the risk of inadequate funding to complete the transition to NG9-1-1, it will be necessary to examine a revamped emergency service fee system to aid in appropriately funding and maintaining upgrades of the state's 9-1-1 emergency communications infrastructure and services so that it can become more compatible with wireless and data-driven technology.

MAINTENANCE OF THE CURRENT LEVEL OF SERVICE DURING TRANSITION

Although migration to an advanced, integrated 9-1-1 system is a priority, it is crucial to maintain the current level of service in existing 9-1-1 systems during migration. As a part of normal operating costs, call taker equipment must be replaced at the end of its service life. The CSEC's standard for equipment replacement in the state program is based upon commonly accepted standards. The risk of losing emergency calls due to equipment failure increases when these replacement thresholds are not met. Costs for equipment maintenance and repair also increase

when equipment is required to remain in service after the vendor has designated the item end-of-life or obsolete. Equipment failures, due to age and/or equipment operating past recommended life cycles, could materially affect public safety and health.

VI. STRATEGIC DIRECTION AND LONG-RANGE POLICY GUIDELINES

To address the issues inherent in today's 9-1-1 technology, Texas 9-1-1 Entities are implementing NG9-1-1. NG9-1-1 planning, transition and implementation will be an extensive, multi-year effort. Implementing a new 9-1-1 system presents both opportunity and challenge. The opportunity lies in the ability to enhance a vital public safety service. The challenge will be to marshal the resources required to effect the change.

NEXT GENERATION 9-1-1 (NG9-1-1)

The NG9-1-1 Now Coalition is comprised of leading 9-1-1 associations in the country including the National Emergency Number Association (NENA), the National Association of State 9-1-1 Administrators (NASNA), and the Industry Council for Emergency Response Technologies (iCERT), and the NG9-1-1 Institute, as well as experts in government and academia. According to the coalition's definition, NG9-1-1 is:

[A] secure, internet protocol (IP)-based, open-standards system comprised of hardware, software, data, and operational policies and procedures that:

- provides standardized interfaces from emergency call and message services to support emergency communications;*
- processes all types of emergency calls, including voice, text, data, and multimedia information.*
- acquires and integrates additional emergency call data useful to call routing and handling.*
- delivers the emergency calls, messages, and data to the appropriate public safety answering point and other appropriate emergency entities based on the location of the caller,*

- *supports data, video, and other communications needs for coordinated incident response and management, and*
- *interoperates with services and networks used by first responders to facilitate emergency response.*³

TEXAS NG9-1-1 SYSTEM

The Texas NG9-1-1 System will be realized with the implementation of multiple Emergency Services Internet-Protocol Networks (ESInet) at the Local, Regional and Multi-Regional level that will interconnect and interoperate. The system will be comprised of interconnected and interoperable NG9- 1-1 systems of emergency services networks with multiple vendors/solutions deployed across the state.

NEXT GENERATION 9-1-1 MASTER PLAN

The CSEC Next Generation 9-1-1 Master Plan, Version 7 (July 2020) that is incorporated as Appendix 1 presents the uniquely Texas. The purpose of this document is to communicate the vision of the Texas NG9-1-1 System to stakeholders so that they may be actively engaged in its development and deployment. Originally published in 2020, the Master Plan is updated biennially and included as part of the Statewide Strategic Plan for 9-1-1 Service.

The Master Plan provides detailed information on the strategic direction and long-range policy issues related to the implementation of NG9-1-1, and includes the following sections:

- Vision for Texas NG9-1-1
- Texas NG9-1-1 System Overview
- Method of Finance
- Policies & Standards
- CSEC State-level ESInet Governance
- Resource Sharing
- NG9-1-1 & FirstNet
- Glossary of Terms

VII. GOALS, OBJECTIVES AND PRIORITIES FOR TEXAS 9-1-1 SERVICE

Goal: Establish a more effective, efficient, resilient, and enhanced Texas NG9-1-1 System.

Objectives (in priority order):

1. Maintain the present level of 9-1-1 service.
2. Continue to implement Text to 9-1-1 service in those areas of Texas seeking to do so.

3. Plan and deploy Local, Regional, and Multi-Regional ESInets.
4. Plan and deploy NG9-1-1 Core Services to replace existing legacy 9-1-1 selective routers.
5. Identify and recommend standards for interoperability and interconnectivity, including cybersecurity, between NG9-1-1 systems.
6. Develop an outreach and awareness plan to educate elected officials, policymakers, and public safety communications stakeholders about NG9-1-1

VIII. FINANCIAL PERFORMANCE OF RPCS IN PROVIDING 9-1-1 SERVICE

Figure 2 – *RPC Financial Performance (FY 2018 – 2019)* details the financial performance of each RPC in providing 9-1-1 service.

FIGURE 1: MAP OF TEXAS 9-1-1 ENTITIES

Emergency Communication Districts

- 1 Abilene-Taylor Co. 9-1-1 District
- 2 Austin Co. Emergency Communications District
- 3 Bexar Metro 911 Network District
- 4 Brazos Co. Emergency Communications District
- 5 Calhoun Co. 911 Emergency Communications District
- 6 Cameron Co. Emergency Communications District
- 7 Capital Area Emergency Communications District
- 8 Denco Area 911 District
- 9 El Paso Co. 911 District
- 10 Emergency Communications District of Ector Co.
- 11 Galveston Co. Emergency Communications District
- 12 Greater Harris Co. 911 Emergency Network
- 13 Gulf Coast Regional 9-1-1 Communications District
- 14 Henderson Co. 911 Communications District
- 15 Howard Co. 911 Communications District
- 16 Kerr Co. Emergency 911 Network
- 17 Lubbock Co. Emergency Communications District
- 18 McLennan Co. Emergency Assistance District
- 19 Medina Co. 911 District
- 20 Midland Emergency Communications District
- 21 Montgomery Co. Emergency Communications District
- 22 North Central Texas Emergency Communications District
- 23 Potter-Randall Co. Emergency Communications District
- 24 Smith Co. 911 Communications District
- 25 Tarrant Co. 911 District
- 26 Texas Eastern 911 Network
- 27 Wichita/Wilbarger 9-1-1 Communications District

Municipal Emergency Communication Districts

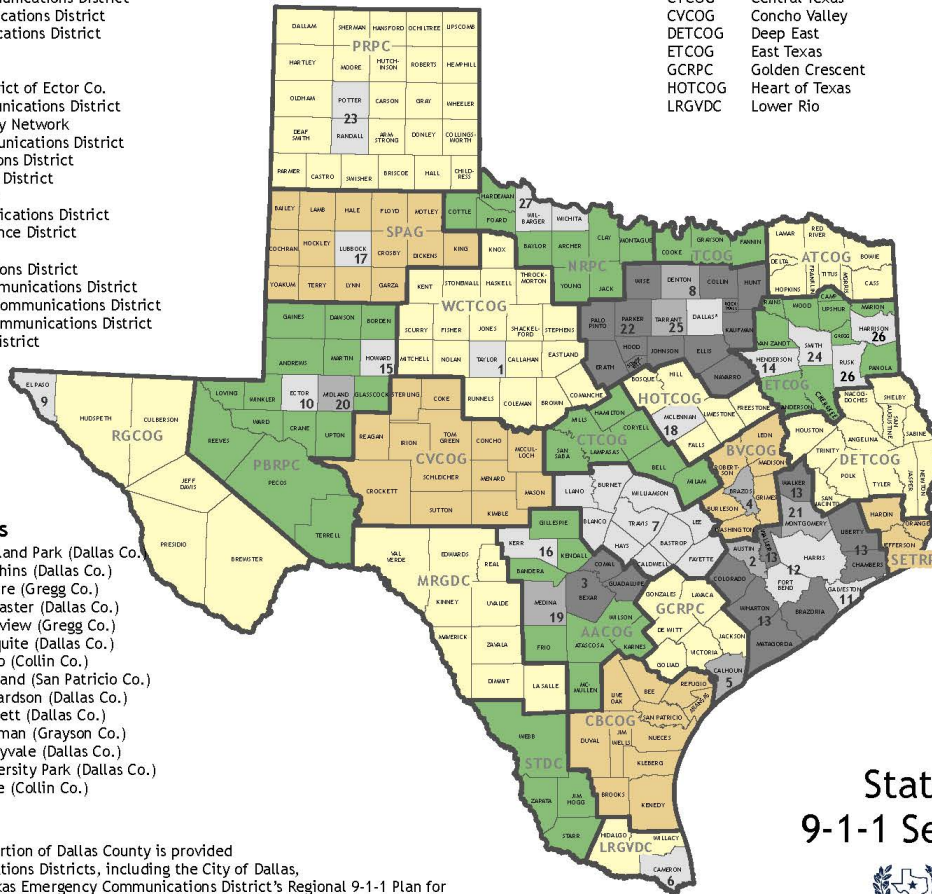
- | | |
|-----------------------------|------------------------------|
| Addison (Dallas Co.) | Highland Park (Dallas Co.) |
| Aransas Pass (Aransas Co.) | Hutchins (Dallas Co.) |
| Carrollton (Denton Co.) | Kilgore (Gregg Co.) |
| Cedar Hill (Dallas Co.) | Lancaster (Dallas Co.) |
| Coppell (Dallas Co.) | Longview (Gregg Co.) |
| Corpus Christi (Nueces Co.) | Mesquite (Dallas Co.) |
| Dallas (Dallas Co.) | Plano (Collin Co.) |
| Dallas County* | Portland (San Patricio Co.) |
| De Soto (Dallas Co.) | Richardson (Dallas Co.) |
| Denison (Grayson Co.) | Rowlett (Dallas Co.) |
| Duncanville (Dallas Co.) | Sherman (Grayson Co.) |
| Ennis (Ellis Co.) | Sunnyvale (Dallas Co.) |
| Farmers Branch (Dallas Co.) | University Park (Dallas Co.) |
| Garland (Dallas Co.) | Wylie (Collin Co.) |
| Glenn Heights (Dallas Co.) | |

*9-1-1 service in the incorporated portion of Dallas County is provided by Municipal Emergency Communications Districts, including the City of Dallas, or pursuant to the North Central Texas Emergency Communications District's Regional 9-1-1 Plan for four municipalities. 9-1-1 service in the unincorporated portion of Dallas County is provided by the Dallas County Sheriff's Department under Texas Health and Safety Code Chapter 772, Subchapter E.

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Regional Planning Commissions

- | | | | |
|--------|-----------------|--------|--------------------|
| AACOG | Alamo Area | MRGDC | Middle Rio |
| ATCOG | Ark-Tex | NRPC | Nortex |
| BVCOG | Brazos Valley | PBRPC | Permian Basin |
| CBCOG | Coastal Bend | PRPC | Panhandle |
| CTCOG | Central Texas | RGCOG | Rio Grande |
| CVCOG | Concho Valley | SETRPC | South East |
| DETCOG | Deep East | SPAG | South Plains |
| ETCOG | East Texas | STDC | South Texas/Laredo |
| GCRPC | Golden Crescent | TCOG | Texoma |
| HOTCOG | Heart of Texas | WCTCOG | West Central |
| LRGVDC | Lower Rio | | |



State of Texas 9-1-1 Service Entities



Commission on
State Emergency
Communications

FIGURE 2: RPC FINANCIAL PERFORMANCE (FY 2018 - 2019)

Details of the Financial Performance of Each Regional Planning Commission (rounded)								
	Appropriation Year 2018				Appropriation Year 2019			
	Administration	Network Operations	Equipment Replacement	AY 18 Total	Administration	Network Operations	Equipment Replacement	AY 19 Total
Alamo Area	\$ 109,509	\$ 1,322,941	\$ 25,000	\$ 1,457,450	\$ 123,171	\$ 1,551,532	\$ -	\$ 1,674,703
Ark-Tex	125,541	1,406,723	488,000	2,020,264	130,995	1,466,362	533,583	2,130,940
Brazos Valley	75,568	625,970	-	701,538	91,455	1,224,562	147,527	1,463,543
Central Texas	234,425	1,761,069	48,350	2,043,844	334,723	3,099,773	238,946	3,673,442
Coastal Bend	192,336	1,157,856	78,944	1,429,136	191,752	1,653,262	393,242	2,238,256
Concho Valley	59,479	1,702,418	-	1,761,897	70,619	2,472,448	540,802	3,083,869
Deep East Texas	191,220	1,614,274	-	1,805,494	201,557	3,281,473	64,941	3,547,971
East Texas	119,576	1,838,218	21,747	1,979,541	133,470	1,826,327	176,310	2,136,107
Golden Crescent	24,963	856,161	-	881,124	26,653	950,569	249,250	1,226,472
Heart of Texas	72,191	566,029	-	638,220	68,979	842,134	158,652	1,069,765
Lower Rio Grande	309,315	3,083,207	299,522	3,692,044	264,410	5,240,756	1,137,862	6,643,027
Middle Rio Grande	124,800	893,107	-	1,017,907	71,255	1,068,245	-	1,139,499
Nortex	33,081	628,621	81,624	743,325	15,324	259,235	-	274,559
North Central Texas*	546,802	6,094,733	479,083	7,120,618	167,199	3,953,178	85,200	4,205,577
Panhandle	63,752	1,289,339	-	1,353,092	68,087	1,750,380	213,857	2,032,324
Permian Basin	34,406	1,479,037	-	1,513,442	40,013	2,012,561	50,000	2,102,574
Rio Grande	100,000	520,595	83,083	703,678	100,000	582,837	38,038	720,875
South East Texas	180,587	1,775,406	-	1,955,993	173,952	2,056,947	24,156	2,255,055
South Plains	97,095	822,537	-	919,632	98,710	939,666	22,600	1,060,976
South Texas	-	1,306,222	7,075	1,313,297	-	2,822,510	9,696	2,832,206
Texoma	58,273	470,789	-	529,062	45,818	717,900	78,657	842,375
West Central Texas	137,864	2,184,551	-	2,322,415	128,084	2,233,043	368,669	2,729,796
TOTAL	\$ 2,890,782	\$ 33,399,802	\$1,612,427	\$37,903,011	\$ 2,546,225	\$42,005,700	\$4,531,988	\$49,083,912

* Effective 12-20-2018 North Central Texas Council of Governments withdrew from the CSEC 9-1-1 Program and became a regional emergency communications district.

**APPENDIX 1: CSEC NEXT GENERATION 9-1-1 MASTER PLAN
VERSION 7.0 (July 2020)**

**COMMISSION ON STATE
EMERGENCY COMMUNICATIONS**

NEXT GENERATION 9-1-1 MASTER PLAN



**VERSION 7.0
July 2020**

DOCUMENT CHANGE HISTORY

Version	Publication Date	Description of Change
v1.0	February 2009	Initial Publication
v2.0	July 2009	Added Migration Path and minor corrections.
V3.0	December 2010	Revised Background to include promulgation of CSEC Rule 252.8. Added section on Radio over IP. Edits to clarify PSAP connectivity as via Regional ESInet and updated Drawing 1 to reflect it. Additional edits to address consideration of transitional systems, cyber security and IPv6.
V4.0	July 2014	Revised based on May 7, 2014 <i>Texas NG-1-1 Master Plan Recommended Updates</i> , stakeholder input facilitated and gathered by Mission Critical Partners. The Master Plan will be the basis of Fiscal Years 2016 2017 Strategic Plan for Statewide 9-1-1 Service.
V5.0	June 2016	Revised based on stakeholder input (<i>i.e.</i> , Legislative Working Group, Emergency Communications Advisory Committee, and the 911 Strategy Governance Committee)
V6.0	July 2018	Revised based on Commission action and stakeholder input (<i>i.e.</i> Legislative Working Group, Emergency Communications Advisory Committee, 9- 1-1 Strategic Alignment Governance Committee).
V7.0	July 2020	Revised based on Commission action and stakeholder input (<i>i.e.</i> Legislative Working Group, Emergency Communications Advisory Committee, 9- 1-1 Strategic Alignment Governance Committee).

EXECUTIVE SUMMARY

THE EXISTING 9-1-1 SYSTEM IS OUTDATED.

A digital replacement of the current analog 9-1-1 system is needed.

The technology supporting the current 9-1-1 system uses legacy technology to deliver 9-1-1 calls and location information is nearing end-of-life and will soon be obsolete. The national telecommunications infrastructure is changing as is the way the public communicates and adopts new technology. These changes have a direct impact on the ability of 9-1-1 service to support and serve the public.

THE CURRENT 9-1-1 SYSTEM IS NOT INTEROPERABLE WITH OTHER PUBLIC SAFETY COMMUNICATIONS SYSTEMS.

It is critical that public safety communication systems be interoperable and with the ability to exchange information with first responders, and quickly reroute emergency calls during natural and manmade disasters.

NEXT GENERATION 9-1-1 (NG9-1-1)¹

The NG9-1-1 Now Coalition is comprised of leading 9-1-1 associations in the country including the National Emergency Number Association (NENA), the National Association of State 9-1-1 Administrators (NASNA), and the Industry Council for Emergency Response Technologies (iCERT), and the NG9-1-1 Institute, as well as experts in government and academia. According to the coalition's definition, NG9-1-1 is:

[A] secure, internet protocol (IP)-based, open-standards system comprised of hardware, software, data, and operational policies and procedures that:

- *provides standardized interfaces from emergency call and message services to support emergency communications;*
- *processes all types of emergency calls, including voice, text, data, and multimedia information;*
- *acquires and integrates additional emergency call data useful to call routing and handling;*
- *delivers the emergency calls, messages, and data to the appropriate public safety answering point and other appropriate emergency entities based on the location of the caller;*
- *supports data, video, and other communications needs for coordinated incident response and management; and*
- *interoperates with services and networks used by first responders to facilitate emergency response.²*

¹ A Glossary of Terms (commonly used acronyms) is provided at the end of this Master Plan as Attachment B.

² See 47 U.S.C. §§ 942(5) and 1401(22).

INCORPORATING THESE ADVANCED CAPABILITIES WILL REQUIRE MAJOR CHANGES TO THE 9-1-1 INFRASTRUCTURE.

NG9-1-1 planning, transition, and implementation will be an extensive, multi-year effort. Implementing the new 9-1-1 system presents both opportunity and challenge.

The *CSEC Next Generation 9-1-1 Master Plan (Ver. 7.0, July 2020)* sets the strategic direction and long-range policy guidelines, as well as the new system's functionality, management, operations, security, and governance, and charts the course for the transition.

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A. INTRODUCTION

The technology supporting the current 9-1-1 system will soon be obsolete. It uses legacy technology to deliver 9-1-1 calls and location data for landline voice, landline teletype/telecommunications device for the deaf (TTY/TDD); and bolted on additional systems to deliver wireless/cellular voice and VoIP 9-1-1 to the Public Safety Answering Point (PSAP). Each introduction of a new access technology (e.g., wireless) or expansion of system functions (e.g., location determination) requires significant engineering and system modifications. The existing system is based on technologies that were established decades ago and is a barrier to creating an integrated emergency call management system that would have the ability to exchange voice, data, text, photographs, and live video through the 9-1-1 emergency communications center. These capabilities would assist law enforcement, fire departments, and emergency medical services in tailoring their response to conditions at the scene of the emergency. An advanced, integrated 9-1-1 system would also provide the ability to quickly and easily reroute emergency calls to another call center when the primary answering point is unavailable or overloaded. The incorporation of these advanced capabilities would no doubt enhance the ability to provide more efficient, effective, and dynamic emergency responses; however, major changes will be required in the 9-1-1 system. The new system is referred to as Next Generation 9-1-1, or NG9-1-1.

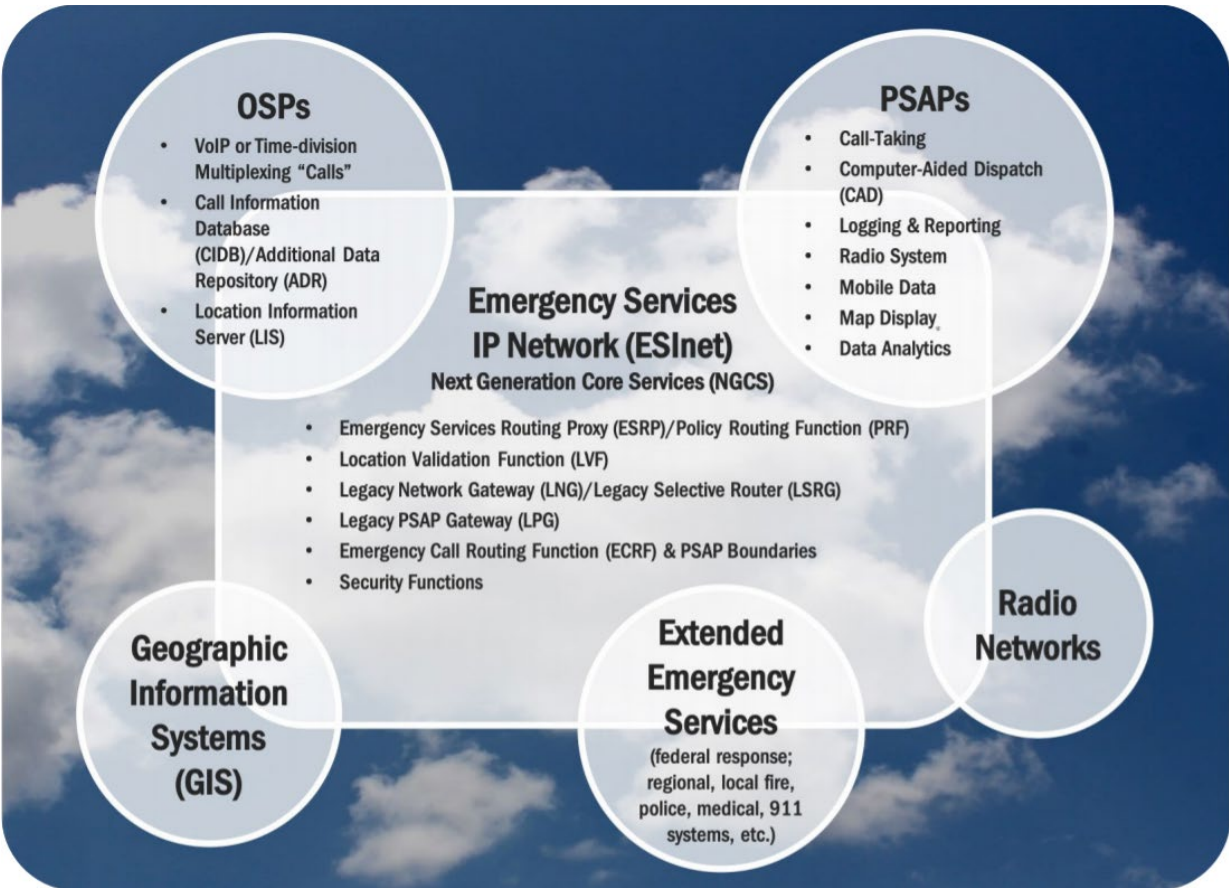
The purpose of this document is to communicate the vision for the future state of the Texas NG9-1-1 System to stakeholders so that they may be actively engaged in its development and deployment. The Commission on State Emergency Communications (Commission or CSEC) has developed, and regularly updates, its NG9-1-1 Master Plan (Master Plan) to ensure the successful transition from the current 9-1-1 system to the Texas NG9-1-1 System. It charts the course of CSEC and other 9-1-1 Entities that will be necessary to transition all Texas PSAPs from the current Enhanced 9-1-1 system(s) to the Texas NG9-1-1 System.

B. VISION OF THE TEXAS NG9-1-1 SYSTEM

The Texas NG9-1-1 System will be comprised of interconnected and interoperable NG9-1-1 systems of local, regional, and other emergency services networks. As a “system-of-systems” and “network-of-networks,” the Texas NG9-1-1 System will provide 9-1-1 Entities the choice to connect their PSAPs directly to emergency services networks and utilize NG9-1-1 Core Services (NGCS) provisioned by NG9-1-1 systems deployed by CSEC, the Regional Planning Commissions (RPCs), the Emergency Communications Districts (ECDs) and collaborating 9-1-1 Entities at the local and regional level in Texas. These interconnected NG9-1-1 systems will serve as multiple input points for all 9-1-1 calls in the State of Texas.

The National 9-1-1 Program’s NG9-1-1 Roadmap illustrates the high-level end state of an NG9-1-1 environment at the jurisdictional level (e.g., regional level in Texas) will facilitate interaction with the public through originating service providers (OSPs), PSAP systems and operations, radio networks, extended emergency services, and geographic information systems (GIS), as shown below.³

³ National 9-1-1 Program, *NG9-1-1 Roadmap: Pathways toward nationwide interconnection of 911 services*, page 8, available at: <https://csec.app.box.com/s/ydff0bgrn6wtrkwglkiwyz0qf5w8ktgh>



The Federal Communications Commission’s (FCC’s) Task Force on Optimal PSAP Architecture (TFOPA) Final Report recommends:

9-1-1 Authorities explore the use of a shared infrastructure model and embrace strategies to collaborate and share resources when transitioning to NG9-1-1 as a way to meet their responsibility for providing an optimally effective and efficient emergency communications system for their citizens and emergency responders.

C. TEXAS NG9-1-1 SYSTEM OVERVIEW

1. CSEC NG9-1-1 PROJECTS

CSEC negotiated a cooperative purchasing contract via the Department of Information Resources (DIR) TEX-AN contract for a managed NG9-1-1 Service Offering (NSO) provided by a commercial 9-1-1 service provider. RPCs in the CSEC program were not required to use this vendor-provided NSO but had it available as an option for implementing NG9-1-1 service in the regions. A second cooperative contract for NG9-1-1 managed services provided by a separate commercial 9-1-1 service provider has been established through Purchasing Solutions Alliance.

All RPCs have local control of implementation of NG9-1-1 services in their respective PSAPs and are responsible for the implementation of NG9-1-1 in their regions.

Both NG9-1-1 managed services, once implemented, will:

- Implement a public safety grade, standards compliant NG9-1-1 system, to provide NGCS to

- replace the current E9-1-1 system;
- Interconnect the PSAPs of the participating RPC 9-1-1 Programs' PSAPs at the established demarcation point to the CSEC State-level ESInet; and
- Turn-up NGCS and migrate PSAPs' 9-1-1 traffic from the current E9-1-1 system(s) to the State-level ESInet.

In 2019, CSEC provided information to and requested each RPC notify CSEC of their intended approach for implementation of NG9-1-1. Seventeen (17) RPCs indicated their intent to award a contract to the commercial 9-1-1 service provider offering services via the established DIR TEX-AN contract. Four (4) RPCs indicated their intent to award a contract to the commercial 9-1-1 service provider offering services via the established Purchasing Solutions Alliance contract.

CSEC will continue planning and providing support to complete the work that must be done before services can commence. This work includes:

- Continue work on GIS data via an Enterprise Geospatial Database Management System (EGDMS);
- Adjust the CSEC NG9-1-1 Master Plan; and
- Continue transforming the CSEC 9-1-1 Program to support the transition to NG9-1-1.

2. OTHER ACTIVITIES

EMERGENCY COMMUNICATIONS DISTRICTS

There are 27 Emergency Communication Districts established and operated under Chapter 772 of the Texas Health and Safety Code (772 ECDs). Currently these 772 ECDs provide 9- 1-1 service to approximately 20.3 million or 70.3% of the State's population. Although these 772 ECDs are independent with their own governing boards, they share knowledge and resources and coordinate common activities, including migration to NG9-1-1. To assist in that effort, they cooperatively participate in the Texas 9-1-1 Alliance (Alliance), an administrative entity created by the 772 ECDs under the Interlocal Cooperation Act. Through collective and individual efforts, Alliance members are currently active in data projects essential to NG9-1-1, and the establishment of regional ESInets and an Alliance-wide emergency services IP network infrastructure and connectivity essential to that migration. It is anticipated that the Alliance member network, data, and operational environment will interoperate with other Texas ESInets based on standards and interlocal agreements to provide a secure statewide NG9-1-1 environment.

MUNICIPAL EMERGENCY COMMUNICATIONS DISTRICTS

MECDA, the Municipal Emergency Communications Districts Association, is similar to the Texas 9-1-1 Alliance. The 29-member municipal agencies of MECDA represent what has traditionally been called the Home Rule City or Municipal Emergency Communication Districts (Municipal ECDs). MECDA member agencies provide 9-1-1 services to cities as large as Dallas, and as small as Glenn Heights. As Home Rule City ECDs, MECDA agencies are independent, but share knowledge and resources and coordinate common public safety activities, including migration to NG9-1-1. To assist in that effort, member cities cooperatively participate in MECDA, electing their own MECDA board members and conducting all member meetings six times per year. Members are also active on the MECDA website, sharing information, and asking for input from other agencies on various public safety communication matters.

MECDA board members are currently active in various projects that are essential to NG9-1-1 and are beginning to join established regional ESInets. It is anticipated that the MECDA member agencies will also participate in a statewide NG9-1-1 environment, utilize services provided by vendors and other available ESInets, via inter-local agreements and other contractual arrangements.

3. TRANSITION OVERVIEW

The Texas NG9-1-1 environment will differ considerably from the current 9-1-1 environment. The changes are not limited to standards and technology. They include the governance, security, management and operation of the system and the delivery of services. The changes affect the entire 9-1-1 community, including the general public and other emergency services. The planning and transition to NG9-1-1 will be an extensive, multi-year effort, and completely dependent upon the availability of funds.

The transition strategy from legacy 9-1-1 to NG9-1-1 is critical to the success of NG9-1-1 implementation. The strategy is impacted by the sheer complexities involved and by costs imposed for operating concurrent 9-1-1 systems until transition is complete. Planning will help facilitate implementation within a reasonable time frame, and through economies of scale 9-1-1 Entities can minimize transitional costs and maintain positive outcomes with maximum fiscal responsibility. The Texas transition will require CSEC and the seventy-seven (77) Texas 9-1-1 Entities⁴ to plan, coordinate and collaborate on the migration of five hundred and sixty-nine (569) PSAPs from the current 9-1-1 system to the Texas NG9-1-1 System. Each entity or groups of entities will need to carefully examine its own needs and circumstances to determine their migration to NG9-1-1.

4. TRANSITION STAGES

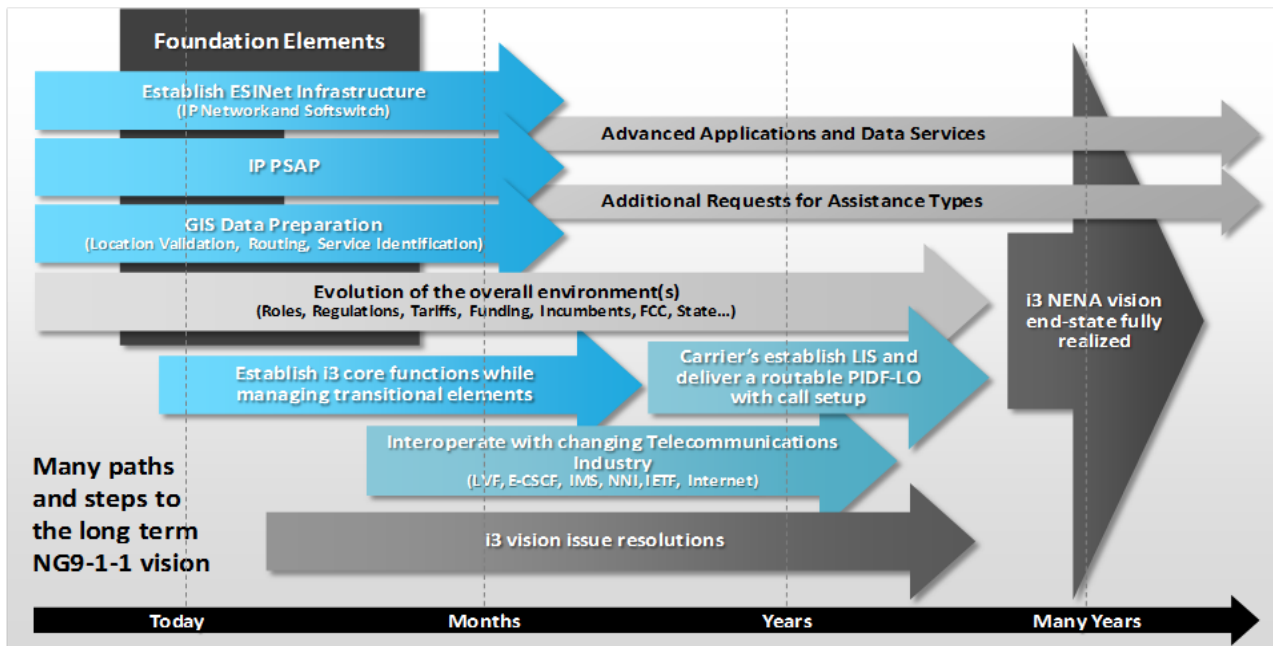
There are three foundation elements that must be established to achieve NG9-1-1.⁵ These elements are: ESInet with NGCS applications, IP PSAPs, and GIS Data Preparation. These elements do not necessarily need to be implemented in any particular order. The sequence and completion are planned according to goals and plans for the implementation of NG9-1-1 core services. The ability to fund these various stages of system development and implementation will determine the timeline.

The following diagram illustrates these foundational elements and the migration to NG9-1-1.

⁴ The 9-1-1 administrative entities consist of fifty-six (56) Emergency Communication Districts (ECDs) and the state program administered by the CSEC and operated by twenty-one (21) Regional Planning Commissions (RPCs). Twenty-seven (27) ECDs have been formed and operate under the authority of Health and Safety Code Chapter 772. Twenty-eight (28) municipalities and one (1) county that are recognized as ECDs in Health and Safety Code § 771.001(3)(A) operate 9-1-1 systems that are independent of the state's system. 9-1-1 service in the incorporated portion of Dallas County is provided by ECDs, or pursuant to the North Central Texas Council of Governments' Regional 9-1-1 Plan. 9-1-1 service in the unincorporated portion of Dallas County is provided by the Dallas County Sheriff's Office.

⁵ FCC, *Task Force on Optimal PSAP Architecture (TFOPA) – Adopted Final Report*, page 140, available at: <https://csec.app.box.com/s/xcdlqfh6fnvc9ae2woov19lxd7oqtcf>

PUBLIC SAFETY MIGRATION STEPS TO NG9-1-1



5. TRANSITION STATUS

For many 9-1-1 Entities the transition has already begun, with deployment of regional ESInets and core functions in various degrees of completion.

CSEC STATE 9-1-1 PROGRAM

CSEC and RPCs have begun the implementation of the foundational elements of transition simultaneously, not sequentially. The following status is reflective of the public safety migration steps illustrated in the previous diagram.

GIS Data Preparation

CSEC has procured and implemented an EGDMS for the preparation, coalescing and provisioning of 9-1-1 GIS data by the participating RPCs, to relevant components that provide NG9-1-1 core services; and a 9-1-1 Database Management System, with legacy and NG9-1-1 location validation functionality. Transition has begun to the new 9-1-1 Database Management System that will enable legacy PSAPs to receive the caller's location information as Automatic Location Identification (ALI); and NG9-1-1 PSAPs to receive the caller's location information with the call. Participating RPC PSAPs transition to the new system upon request, and when GIS data reaches the established accuracy threshold of 98%.

IP Infrastructure and PSAPs

All of the twenty-one RPCs in the CSEC program have implemented regional connectivity between 100% of the 257 PSAPs in the CSEC State 9-1-1 program area, thereby creating regional ESInets that will facilitate and simplify future connectivity to other ESInets and NG9- 1-1 systems and services.

Establish NG9-1-1 Core Functions and Services and Manage Transitional Elements

CSEC negotiated a cooperative contract as a choice for RPCs and other 9-1-1 Entities to procure NG9-1-1

services. The contract is for vendor-provided NG9-1-1 managed services that provides NG9-1-1 core functions and services, as well as services to manage transitional elements. A second cooperative contract for NG9-1-1 managed services provided by a separate commercial 9-1-1 service provider has been established through Purchasing Solutions Alliance. The two cooperative contracts allow the RPCs to have choice in selecting a service provider while still being efficient and effective in the procurement of the services. All RPCs are responsible for the implementation of NG9-1-1 in their regions by FY 2023.

6. TRANSITION RISKS

The transition risks identified are as follows described in further detail below:

- Funding
- Evolving Standards
- Network-to-Network Interfaces
- Geospatial/GIS Data Management

FUNDING

Inadequate and unpredictable levels of funding are a direct risk to the transition to NG9-1-1. With nationwide efforts by communications service providers to complete IP transition by the aspirational date of 2023, potential consequences of not implementing NG9-1-1 or other system enhancements could mean the potential loss of life and property due to misrouted 9-1-1 calls, and an increase in the number of 9-1-1 calls with inaccurate location information for emergency response. Such deficiencies put the first responders at risk; undermine the public's trust in 9-1-1 systems; creates technical obsolescence; increases the cost of operating obsolete 9-1-1 systems; increases risks of cyber vulnerability; and reduces reliability.

The Commission anticipates there will be a fund balance of approximately \$32 million in 9-1-1 service fees (GR-D Account 5050 at the end of FY 2021. A fund balance in the GR-D Account 5050 of \$32 million by end of FY 2021 is less than one-year's cost to fund the Commission's grants to the RPCs.

It has long been a policy goal of the Commission to be appropriated the 9-1-1 revenue previously collected and held in the account, in addition to the revenue generated each biennium. The Commission began realizing this goal beginning in FY 2014-2015 when the Texas Legislature established and implemented a policy to use dedicated funding sources, such as 9-1-1 fees, for purposes for which those fees are intended. Funding provided by 9-1-1 service fee revenue generated each biennium, as well as funding from the fund balance, enables the CSEC and RPC 9-1-1 programs to make significant investments required to implement NG9-1-1.

While the fund balance in GR-D Account 5050 continues to decline, the fund balance is increasing in GR-D Account 5007, Equalization Surcharge. Equalization surcharge fund balance continues to increase due to appropriation of only 45% of the statutorily allowable 60% collected revenues for Poison Control Services; and, appropriation of less than 40% of revenue generated to the 9-1-1 Program. The Commission anticipates that there will be a fund balance of approximately \$58 million in equalization surcharge revenue in GR-D Account 5007 at the end of FY 2021. If appropriations to CSEC for the Poison Program remain static in the FY 2022 – 2023 biennium, the fund balance will increase by \$8 to \$65 million.

Sufficient funding is projected to continue current 9-1-1 operations and equipment replacement and transition to NG9-1-1 through year end FY 2023.

Going forward, a fiscally conservative and prudent approach will be taken by the CSEC 9-1-1 Program to determine if all RPCs can operate within projected revenue streams and not be reliant upon allocations from the 9-1-1 service fee fund balance. As the implementation of NG9-1-1 progresses, specific cost information is becoming more accurate. The cost savings from depreciating legacy system components that will no longer be needed in NG9-1-1 will also become more accurate. The Commission and the RPCs have begun planning and making budget projections for what it will cost to maintain the new NG9-1-1 system after transition and after the fund balances are all but depleted.

To mitigate the risk of inadequate funding to complete the transition to NG9-1-1, it will be necessary to examine a revamped emergency service fee system to aid in appropriately funding and maintaining upgrades of the state's 9-1-1 emergency communications infrastructure and services so that it can become more compatible with wireless and data-driven technology. Further discussion of the current fee structure is provided in the following section on Method of Finance. Historical and prospective representation of the two dedicated accounts are reflected in Tables 1 and 2 included in this report as Attachment A.

EVOLVING STANDARDS

NG9-1-1 standards continue to evolve with some fundamental elements requiring future work. Until the standards for these elements are defined, vendors' solutions will vary, and future releases will be required. This may have an impact on total cost. The varying levels of completion on standards may also have an impact on vendor interoperability, which could lead to delays or limitations on feature functionality, especially in the deployment of i3 event logging.

These risks can be minimized by gaining a thorough understanding of which standards are complete, in development, and how those under development may have downstream impacts on vendors' solutions. CSEC and the 9-1-1 Entities monitor such standards development through their ongoing awareness and participation in committees and work being done by standards and best practices organizations included in the National 9-1-1 Program review. The Commission's Emergency Communication Advisory Committee (ECAC) has begun the work to identify and develop standards related to NG9-1-1, including leveraging existing and in-progress standards under development by standards and best practices organizations.

NETWORK-TO-NETWORK INTERFACES

The interconnection of multiple ESInets will require close collaboration between network engineering resources from the interconnecting parties to ensure proper security protocols are implemented for all end points on a network; QoS markings are honored; virtual private network tunnels are allowed; and other such activities. Operationally, two interconnecting networks will need to agree upon standard operating procedures for the purpose of troubleshooting, trouble ticket management, network operations center-to-network operations center (NOC-to-NOC) communications, and service level agreements.

The risk to optimal implementation may be mitigated by developing and establishing security and operational standards. The ECAC is in the process of identifying standards for interoperability, interconnectivity, and cybersecurity as a priority, to be recommended for adoption by the Commission during the FY 2020 - 2021 biennium.

GEOSPATIAL/GIS DATA MANAGEMENT

GIS data development and on-going management is a cornerstone of NG9-1-1. The 9-1-1 Entities need

resources that are proficient in geospatial data management, and knowledgeable about data management. Where in-house expertise is unavailable, 9-1-1 Entities will have to outsource this function or acquire staff with this skill set, otherwise they may lack the resources to meet the GIS data quality required to transition to NG9-1-1.

9-1-1 Stakeholder education on the importance of geospatial data management and its direct impact on the service PSAPs provide to their communities is the best means of minimizing this risk. The education should provide hands-on examples of how legacy data is managed and routing is performed today; and how geospatial data will be managed, and geo-spatial boundaries will impact call routing in the future i3 environment. The Commission’s ECAC identified GIS Data standards review and revisions as a priority policy issue, and were further developed and revised, adopted by the Commission in FY2018. CSEC staff continues to monitor industry standards for potential updates to the GIS Data standards. Additionally, as identified by the ECAC, CSEC continues to provide resources to educate 9-1-1 Entities on the importance of geospatial data management.

7. TRANSITION TIMELINE

CSEC has established a high-level plan and sequence of RPC transitions to ensure the transition of all RPCs to NG9-1-1 prior to August 2023.

Currently, 14 of the 21 RPCs have initiated activities to begin the migration to NG9-1-1, with completion dates in FY2021 and FY2022. The remaining seven RPCs are targeted to complete their migration by FY2023. All RPCs have local control of implementation of NG9-1-1 services and are responsible for the implementation in their regions by FY2023.

A systematic process has been developed and outlined for reporting and tracking the progress of each RPC throughout the NG9-1-1 implementation. This process is defined by five major stages:

Stage	Key Milestones
Stage 1	Technical Assessment and Readiness Completed Final Pricing and Cost Model Completed Service Orders Submitted/Accepted (activities performed by 9-1-1 Entity & NG9-1-1 System service provider)
Stage 2	Service Activation (Go-Live/Cutover) Date(s) Set Implementation Planning Completed (including Test Plans and PSAP Cutover Plans) (activities performed by 9-1-1 Entity & NG9-1-1 System service provider)
Stage 3	Testing Completed Service Activation (Go-Live) Completed (activities performed by 9-1-1 Entity & NG9-1-1 System service provider)
Stage 4	Production Testing Completed Legacy Services/Circuits Decommissioned (activities performed by 9-1-1 Entity & E9-1-1 System service provider)
Stage 5	Origination Service Provider (OSP) traffic migration Rehome of OSP traffic from E9-1-1 System to NG9-1-1 System (activities performed by OSPs & NG9-1-1 System service provider)

Additional processes, reporting, and metrics are being developed to monitor and support the 21 RPCs in the CSEC program, regardless of the selected approach chosen, as they move forward with NG9-1-1 implementation.

Timing of the transition of the CSEC State 9-1-1 program to NG9-1-1 service continues to be significantly dependent on the appropriation of funds.

D. METHOD OF FINANCE (MoF)

1. CURRENT MoF

The current MoF for the CSEC State 9-1-1 program, operated by the RPCs and administered by CSEC, consists of the three emergency service fees and one surcharge⁶ that follow:

9-1-1 Service Fee (Wireline/VoIP)

This fee is collected by service providers, monthly, for each local exchange access line or equivalent local exchange access line as defined in CSEC Rule 255.4.⁷ This fee collected from the CSEC State 9-1-1 program areas is currently set by CSEC at the maximum allowable \$0.50 per line or equivalent per month and is remitted to the Comptroller for deposit in the 9-1-1 Service Fee Account 5050. This fee varies in areas in which 9-1-1 service is provided by an ECD as defined in Health and Safety Code Section 771.001(3), and in Health and Safety Code Chapter 772.

9-1-1 Service Fee for Wireless Telecommunications Connections

This statewide fee is imposed according to statute at a rate of \$0.50 per month for each wireless telecommunications connection; it is remitted to the Comptroller and initially deposited into a trust fund account. A wireless telecommunications connection means any voice-capable wireless communication mobile station that is provided to a customer by a wireless service provider. Each month CSEC distributes, to each ECD that does not participate in the CSEC State 9-1-1 program, a portion of the total amount collected; this portion is proportional to the population of the area served by the district in relation to the population of the state. The remaining money collected is deposited to the CSEC 9-1-1 Services Fee Account 5050.

Prepaid Wireless 9-1-1 Service Fee

This statewide fee is collected by the seller from the consumer at the time of each retail transaction of prepaid wireless telecommunications service for use in Texas and is remitted to the Comptroller. “Prepaid wireless telecommunications service” means a mobile telecommunications service that is paid for in advance and allows a person to access 9-1-1 emergency communications services. Any person who sells prepaid wireless telecommunications services, or who uses their own prepaid wireless telecommunications services, must collect and remit the fee. The rate is 2% of the purchase price of each prepaid wireless telecommunications service purchased in person, by telephone, over the Internet, or by any other method. The fee is collected, deposited, and distributed in the same manner as the 9-1-1 Service Fee for Wireless Telecommunications Connections.

Equalization Surcharge

This statewide fee is imposed on each local exchange access line, equivalent local exchange access line or wireless telecommunications connection—but not a connection that constitutes prepaid wireless

⁶ https://www.csec.texas.gov/s/fees-and-surcharge?language=en_US

⁷ [Title 1, Part 12 Tex. Admin. Code § 255.4.](#)

telecommunications service—and is remitted to the Comptroller. The fee is set by CSEC, currently at \$0.06, for each local exchange access line, equivalent local exchange access line or wireless telecommunications connection, and is remitted to the Comptroller and held in CSEC’s Equalization Surcharge Account 5007.

Per Texas Health and Safety Code Section 771.072,⁸ up to 40% of the equalization surcharge can be allocated to the RPCs, with the remainder being periodically allocated to fund grants that support the state’s poison control centers. This fee may also be allocated to ECDs.

Although the existing legislation allows the equalization surcharge to be set at a maximum rate of \$0.10 for each access line, Section 771.0725 states:

The commission shall establish the rate for the equalization surcharge imposed under Section 771.072 for each state fiscal biennium in an amount that ensures the aggregate of the anticipated surcharges collected from all customers for the following 12 months does not exceed the aggregate of the surcharges collected from all customers during the preceding 12 months.⁹

As a result, the surcharge is designed to be revenue neutral, and surcharge revenue cannot be enhanced by increasing the rate.

2. MoF OPTIONS FOR NG9-1-1

Below are MoF options for the planning, design, implementation, and maintenance of NG9-1-1.

Service Fee Revenue

As the largest source of current funding for 9-1-1, it is logical to contemplate the use of 9-1-1 service fee revenue to finance the implementation and subsequent operation of the state-level subsystem. CSEC’s enabling legislation, Health and Safety Code 771.071(f) states: “The commission shall distribute money appropriated to the commission from the 9-1-1 services fee fund to regional planning commissions for use in providing 9-1-1 services as provided by contracts executed under Section 771.078.”

Health and Safety Code 771.079(c) states: “... money in the account may be appropriated only to the commission for planning, development, provision, or enhancement of the effectiveness of 9-1-1 service or for contracts with regional planning commissions for 9-1-1 service, including for the purposes of:

- 1) maintaining 9-1-1 service levels while providing for a transition to a system capable of addressing newer technologies and capable of addressing other needs;
- 2) planning and deploying statewide, regional, and local emergency network systems; and
- 3) updating geospatial mapping technologies.”

Equalization Surcharge

Health and Safety Code Section 771.072(d) states:

⁸ <https://statutes.capitol.texas.gov/Docs/HS/htm/HS.771.htm#771.072>

⁹ <https://statutes.capitol.texas.gov/Docs/HS/htm/HS.771.htm#771.0725>

[N]ot more than 40 percent of the amount derived from the application of the surcharge shall be allocated to regional planning commissions or other public agencies designated by the regional planning commissions for use in carrying out the regional plans provided for by this chapter. The allocations to the regional planning commissions are not required to be equal but should be made to carry out the policy of this chapter to implement 9-1-1 service statewide.

Money collected under this section may be allocated to an Emergency Communication District regardless of whether the district is participating in the applicable regional plan.

The enabling legislation provides authority to CSEC to use Equalization Surcharge to finance the implementation and subsequent operation of NG9-1-1. Health and Safety Code Section 771.072(f) states:

The comptroller shall deposit the surcharges and any prior balances in accounts in the general revenue fund in the state treasury until they are allocated to regional planning commissions, other 9-1-1 jurisdictions, and regional poison control centers in accordance with this section. From those accounts, the amount necessary for the commission to fund approved plans of regional planning commissions and regional poison control centers ***and to carry out its duties under this chapter shall be appropriated to the commission.*** (Emphasis added.)

The equalization surcharge is paid by all telecommunications users in the State, except prepaid wireless users, and may be allocated to 9-1-1 Entities regardless of type.

Federal 9-1-1 Grant Program

The 9-1-1 Grant Program was established by the US Department of Commerce and the US Department of Transportation (the Federal Funding Agencies) to provide federal funding to help 9-1-1 public safety answering points upgrade equipment and operations so that citizens, first responders, and 9-1-1 call-takers can use digital, IP-based, broadband-enabled technologies to coordinate emergency responses. The Federal 9-1-1 Grant Program period of performance ends on March 31, 2020. It is not known if there will be future grant funding opportunities.

At the September 2018 open meeting, the Commission delegated to its Executive Director the authority to submit the Texas 9-1-1 Federal Grant Program Application after collaborating with and receiving recommendations from the Commission's ECAC; and administer Texas' participation in the Federal 9-1-1 Grant Program as the designated State 9-1-1 Coordinator. The Office of the Governor affirmed the Commission as the state's authority to manage 9-1-1 service and the Commission's Executive Director as Texas' designated State 9-1-1 Coordinator.

At the March 2019 open meeting, the Commission was provided with the State of Texas 9-1-1 Plan & Project Budget, two mandatory components of the Texas 9-1-1 Federal Grant Program Application. The deadline for submitting grant applications was April 2, 2019. The following Texas 9-1-1 Entities submitted applications to us to be subrecipients of the Texas 9-1-1 grant for projects complying with the grant purposes stated above.

- Bexar Metro 9-1-1 Network District
- Calhoun County 9-1-1 Emergency Communication District
- Central Texas Council of Governments

- City of Dallas
- Denco Area 9-1-1 District
- Gulf Coast Regional 9-1-1 Emergency Communications District
- Kerr County Emergency Communication District
- McLennan County Emergency Assistance District
- Cities of Addison, Carrollton, Coppell, and Farmers Branch
 - Collectively acting through the North Texas Emergency Communications Center—a corporation formed by the four cities to provide regional emergency communications.
- City of Richardson
- Cities of Cedar Hill, DeSoto, and Duncanville
 - Acting through the Southwest Regional Communications Center.

On August 9, 2019, the Commission was awarded \$10,926,740. Commission staff is working with the eleven entities to ensure all procedures and documentation requirements meeting federal regulations are in place. This assures the NG9-1-1 projects being funded with this grant are completed, and reimbursement of funds are expended, within the Federal Grant period of performance.

Future Funding Mechanisms

With the rapid and ever-increasing advent of new communications technologies, current approaches that simply assess fees on end-use devices, access lines, or as a percentage of the costs for services, administered largely by traditional communication service providers, may no longer be effective, efficient or sufficient.

CSEC and the 9-1-1 Entities face challenges in fitting emergency communication services into existing funding mechanisms. Prepaid wireless, Voice over Internet Protocol (VoIP) technologies of the fixed and nomadic varieties, as well as mobile broadband and other Over the Top (OTT) wireless and internet data services (including 9-1-1 applications) have all raised such challenges. Today, revenues from 9-1-1 fees imposed on wireline services continue to decrease as more households, approximately 47%, cut the cord and shift to wireless-only voice service.¹⁰ These new technologies and service allows some carriers to gain a competitive edge by avoiding paying an equitable share of 9-1-1 support. Any technology or services capable of accessing the 9-1-1 system should contribute its fair share to operate the legacy 9-1-1 systems and also to assist in the build-out of ESNets and NG9-1-1 systems.

Policy makers at all levels will need to consider certain 9-1-1 policy principles, and to propose sustainable and technology-neutral funding solutions. NENA's *Funding 9-1-1 Into the Next Generation*¹¹ points out that NG9-1-1 will reflect a system of systems comprised of shared networks, databases, and application environments that will have both traditional and new types of 9-1-1 costs. The new NG9-1-1 environment will be more complex but also more conducive to sharing of costs and financial obligations.

Guiding policy principles for a state funding mechanism should be:

- Predictable and stable
- Based on consumer's ability to request emergency services

¹⁰ FCC, *TFOPA – Adopted Final Report*, page 153

¹¹ NENA, *Funding 9-1-1 Into the Next Generation*, available at:

<https://csec.app.box.com/s/3ojloe06qve6u9ub1kr5hhvvgon5lr7c>

- Reasonable, equitable and non-discriminatory
- Assessed on all services that can access NG9-1-1 systems
- Technologically and competitively neutral
- Designed to assure fees can only be used to support 9-1-1 systems
- Designed to assure fair and equitable allocation of the funds collected to provide service to those who pay the fees
- Designed to assure the revenues collected are sufficient to address transitional, provisioning and ongoing operational costs
- Clearly identified and accountable
- Clear enough to avoid complicating the intergovernmental sharing environment they support.¹²

E. POLICIES & STANDARDS

1. THE COMMISSION

The Commission is an agency of the State of Texas and the state’s authority on emergency communications. The Commission oversees and administers the CSEC State 9-1-1 program under which the establishment and operation of 9-1-1 is provided by Regional Planning Commissions participating in the program. The mission of the CSEC is to preserve and enhance public safety and health in Texas through reliable access to emergency communications services.

The Commission consists of 12 members representing various public and private sector interests. Five members are appointed by the Governor, one each from the governing body of an RPC, 772 ECD, Municipal ECD, County, and one member to represent the general public. Two members each are appointed by the Lieutenant Governor and the Speaker of the House to represent the general public. Three members are ex-officio, non-voting members named in statute, representing the Texas Public Utility Commission, Department of State Health Services, and Department of Information Resources.

2. EMERGENCY COMMUNICATIONS ADVISORY COMMITTEE (ECAC)

The 82nd Texas Legislature enacted Health and Safety Code Section 771.0511 authorizing:

The commission, with the assistance of an advisory committee [ECAC], may coordinate the development, implementation, and management of an interconnected, state-level emergency services Internet Protocol network State-level emergency services Internet Protocol network means a private Internet Protocol network or Virtual Private Network that:

“(A) is used for communications between and among public safety answering points and other entities that support or are supported by public safety answering points in providing emergency call handling and response; and

(B) will be a part of the Texas Next Generation Emergency Communications System.¹³

¹² FCC, *TFOPA Adopted Final Report*, page 154

¹³ [Health and Safety Code § 771.0511\(b\) and .0511\(a\)\(2\).](#)

CSEC's enabling statute requires it to establish policy and oversee agency involvement in the development and implementation of NG9-1-1 systems and to define and delineate the roles and responsibilities of the Commission, the ECAC, and the Executive Director. By resolution, it is the Commission's policy that the development and implementation of NG9-1-1 will be done on a cooperative basis with the state's 9-1-1 Entities. The Commission's role is to make policy, provide strategic direction, exercise oversight, and to authorize and delegate to its Executive Director the responsibility to implement and manage NG9-1-1 systems and services for the CSEC 9-1-1 program and its participating RPCs.

The ECAC was created by Commission Rule 252.8 as an advisory committee in accordance with Government Code Chapter 2110.¹⁴ Per this rule, the Commission shall ensure that each ECAC member has the appropriate training, experience and knowledge in 9-1-1 systems and network management to assist in the implementation and operation of a complex network. The ECAC members are appointed by the Commission and include, at a minimum, the following:

- the Executive Director of the Commission or designee as ex-officio, non-voting member;
- two RPC representatives;
- two Municipal ECD representatives; and
- two 772 ECD representatives.

No two members may be from the same 9-1-1 Entity. The Commission may amend the composition of the ECAC to reflect and include emergency services other than 9-1-1 service. In appointing members to the Committee, the Commission consults with the RPCs and ECDs. RPCs may designate responsibility for consulting with the Commission to the Texas Association of Regional Councils. ECDs, defined in Health and Safety Code § 771.001(3)(A) and (B), may designate responsibility for consulting with the Commission to MECDA and the Texas 9-1-1 Alliance, respectively.

It is the responsibility of the ECAC to advise the Commission on policy matters regarding the establishment and management of NG9-1-1; and, provide for 9-1-1 Entity collaboration, collective decision-making, and assurance that the requirements of the 9-1-1 Entities are met. The ECAC may also assist the Commission by establishing sub-committees, comprised of the state's subject matter experts with involvement from a cross-section of the state's PSAP and 9-1-1 community, to execute the NG9-1-1 Master Plan, enabling the vision to become a reality. CSEC staff may need to acquire services for technical assistance to facilitate this effort.

Having common standards that drive interconnectivity and interoperability is critical to enhance emergency response across the State and nationwide. As highlighted by the National 911 Program in the *NG9-1-1 Interstate Playbook Chapter 2*,¹⁵:

NG9-1-1 will require usage of a common set of standards, which not only will enable a consistent transition, but also will provide for structured maintenance and sustainability of the system. Most standards are either voluntary, consensus-based, or open, but it is imperative that standards be

¹⁴ [Title 1, Part 12 Tex. Admin. Code § 252.8.](#)

¹⁵ National 911 Program, *NG911 Interstate Playbook Chapter 2*, page 10, available at: <https://csec.app.box.com/s/6t5gxexcqj40lzs2sjb4guhfrxpl43v8>

established and consistently adopted to achieve interoperability, especially with the nationwide public safety broadband network (NPSBN) being built under the direction of the First Responder Network Authority (FirstNet) and other emergency communications systems that will interconnect with NG9-1-1 systems.

The ECAC identified and prioritized policy issues to consider, develop and/or recommend to the Commission during the FY 2020 – 2021 biennium covering Cybersecurity, Interoperability and Interconnectivity, GIS Data, and 9-1-1 Applications. These policy issues reflect the current and planned Texas NG9-1-1 environment that will consist of multiple interconnected NG9-1-1 Systems.

As part of this effort, the ECAC created an Interoperability Subcommittee to advise and make recommendations to the Commission in the development, implementation, and management of interconnected ESInets in Texas. The Interoperability Subcommittee is assisting and supporting the ECAC:

- Identify a prioritized list of interoperability standards and best practices to be developed with timelines that will facilitate the pace of NG9-1-1 deployment across the state.
- Develop the prioritized standards and best practices for the ECAC to present to the Commission for consideration and/or adoption.
- Foster 9-1-1 Entity collaboration, collective decision-making, and assure that the requirements of the 9-1-1 Entities are met.

The members of the ECAC Interoperability Subcommittee identified the initial list of standards that will be presented to the ECAC. Commonly accepted standards will be utilized to implement interconnected and interoperable NG9-1-1 systems in Texas, including but not limited to those that address ESInet design, ESInet functional and interface standards, GIS Data for NG9-1-1. Others may be identified as 9-1-1 Entities' projects are implemented and the overall Texas NG9-1-1 environment mature.

F. CSEC STATE-LEVEL ESINET GOVERNANCE MODEL

On February 10, 2016, the CSEC adopted a Governance Handbook for the CSEC that reflected the Commission's previous approach to NG9-1-1 via an owner-operator model. The model was developed collaboratively with RPC representatives (including the two RPC representatives who serve on the ECAC) and CSEC staff.

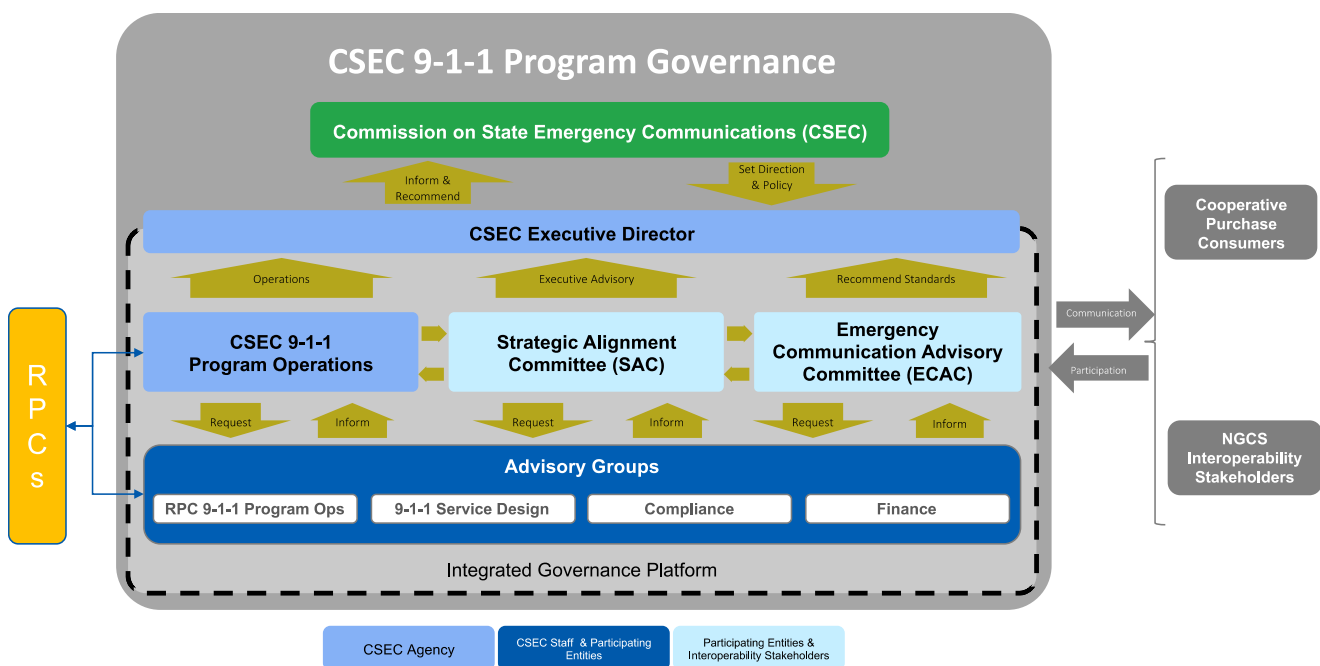
The model is a set of defined interactions, expectations, decisions, roles and processes that guide the governance of the development of NG9-1-1 in the CSEC 9-1-1 Program. While the model was developed to support a state-level ESInet owner/operator model, its structure remained viable and adaptable. CSEC worked with its stakeholders to review and adjust the CSEC 9-1-1 Program and the ESInet Governance Handbook to reflect the Commission's revised approach to transitioning to Next Generation 9-1-1 service.

At the July 24, 2019 open meeting, the Commission approved and adopted as policy the revised governance model described in the CSEC 9-1-1 Program Governance Handbook. The renamed 9-1-1 Program Governance Handbook enables the 9-1-1 Program and related technology to be governed and managed in a holistic manner for the entire enterprise, taking in the full end-to-end operational and

functional areas of responsibility, considering the interests of all stakeholders. The Handbook is designed to enable strategic decision-making, facilitate effective resolution of issues, and ensure all 9-1-1 Entities (including those outside of the Commission’s state 9-1-1 program) have an appropriate level of participation in governance of the CSEC 9-1-1 Program.

The revised Handbook preserves the integral role of participants in the CSEC 9-1-1 Program to contribute to ongoing governance of the program. Additionally, it clarifies the role of the 9-1-1 Strategic Alignment Committee (SAC)¹⁶ as an advisory steering committee for policy development and implementation. The Governance Handbook also more clearly defines interaction and communication among the various governance committees and stakeholders.

The following is a diagram of the CSEC 9-1-1 Program Governance Structure, which illustrates the overall construct of the Committees and Advisory Groups.



G. RESOURCE SHARING

NG9-1-1 increases the opportunity for PSAPs to share resources and to cooperate and collaborate at multiple levels with potentially greater economic technical efficiencies. NG9-1-1 technology has the potential to assist 9-1-1 Entities develop shared or regional models. Texas 9-1-1 Entities have begun exploring how they can best coordinate activities and share resources. NG9-1-1 moves away from the legacy systems to an environment in which sharing and synergy become the norm among local, regional, or state connected PSAPs.

1. SHARED INFRASTRUCTURE

Sharing infrastructure and services enables 9-1-1 Entities and PSAPs to share functional elements that

¹⁶ 9-1-1 SAC members consist of two Commissioners, one RPC Executive Director, the Executive Director of TARC, one RPC 9-1-1 Coordinator, and the Commission’s Executive Director.

meet the needs of individual PSAPs or other types of emergency communication systems. In a shared environment, NG9-1-1 Core Services (ESRP, ECRF, BCF, DNS and Logging) can be implemented and operated on either a single ESInet or multiple interconnected ESInets. The FCC TFOPA¹⁷ report provides a great deal of detail on this subject, and identifies the advantages and disadvantages of resource sharing:

Advantages

- NG9-1-1 Core services and management administration costs are spread across multiple 9-1-1 Entities for a single NG9-1-1 core service system, lessening the impact on local funding.
- Common procedures are established.
- Makes access structure for originating service providers simpler than lower level implementation choices.
- More directly supports interoperability due to common architecture and procedures.
- Involves planned multi-level governance arrangements.
- May make cybersecurity and physical security simpler.

Challenges

- Survivability is potentially affected by limited geo-diversity of service.
- Requires planned multi-level governance agreements.
- Involves potential political issues and changes.
- May require new legal arrangements related to governance and funding.
- Requires specific plans for implementation of ESInet-to-ESInet connectivity to support interoperability.

2. SHARED INFORMATION

The Commission's ECAC identified and prioritized outreach and education as a priority, specifically for smaller 9-1-1 Entities that may not have the technical expertise and personnel or funding resources to support the decisions they must make as the 9-1-1 legacy system is retired and replaced by NG9-1-1. Information and materials are needed to help guide 9-1-1 Entities through decisions that must be made to transition to NG9-1-1. The ECAC will:

- Identify & recommend Commission policies and standards for NG9-1-1 (as described in Section F of this Plan)
- Develop resources to educate the 9-1-1 local decision makers on NG9-1-1 basics, the importance of transitioning to NG9-1-1 and planning steps to be taken.
- Develop tools and resources to guide 9-1-1 Entities through the decision-making process and help them in planning.
- Develop resources to educate 9-1-1 Entities about the importance of GIS data development and management in the NG9-1-1 environment.

3. OUTREACH

With the assistance of the Commission's ECAC and the NG9-1-1 Educator Network, CSEC will continue to facilitate and coordinate outreach efforts with 9-1-1 Entities to identify the key messages and deliver

¹⁷ FCC, *TFOPA Adopted Final Report*, pages 118-119.

them in an appropriate and effective manner. The phased deployment of NG9-1-1 will require 9-1-1 Entities, policy makers and elected officials to understand NG9-1-1 and be aware of where, when, what and how NG9-1-1 services will be available.

The implementation of NG9-1-1 technology will require significant training, retraining and recurring supplemental training, and education through the transition into the end state technology. This training will be for PSAP and 9-1-1 Entities, and operations personnel, and should also include personnel from those public safety agencies that receive services from the PSAP.

Comprehensive outreach and education for 9-1-1 stakeholders is critical to the effectiveness and overall understanding and acceptance of all aspects of NG9-1-1. The PSAPs, the public safety community, and their governmental entities should communicate the challenges, the needs and requirements of the transition including the identification of adequate capital and sustainment funding of the transitional and end state NG9-1-1 technology implementation.

During the current biennium, CSEC has delivered consistent messages to various stakeholders including informational items on NG9-1-1 such as brochures, newsletters, news articles, video blogs and social media posts. These messages reinforce and provide crucial information on the process regarding the transition to NG9-1-1.

NG9-1-1 EDUCATOR NETWORK

To facilitate communications and feedback from stakeholders, CSEC created the Next Generation 9-1-1 Educator Network. The network is responsible for sharing and disseminating information to government entities, PSAPs, the public and other stakeholders within their region and surrounding regions. Their mission is to enhance centralized communication efforts through their knowledge and connections with their local networks.

The network initially started with six RPC representatives to participate in the CSEC NG9-1-1 Educator Group, but over time this group has expand to include more 9-1-1 Entities that have wanted to get involved.

CSEC has and will continue to utilize the NG9-1-1 Educator Network as a resource to help deliver messages to stakeholders and in turn, receive input and feedback from them. The NG9-1-1 Educator Network has and will continue to play a pivotal role by providing feedback through:

- Email and informal conversations
- Creation of NG9-1-1 Toolkit
- Meetings and conference calls
- Feedback on brochures/other toolkits/communications
- Surveys
- Focus groups and workshops
- Social Media and Video Blogs

By leveraging social media for this project, such as Facebook, Twitter, LinkedIn, and YouTube, CSEC can continue to deliver key messages in a resourceful way. The collaboration of the NG9- 1-1 Educator Network and project staff has helped to refine the tactical execution of this strategy by taking resources provided by CSEC and distributing them to stakeholders within the community. Effective

communications with stakeholders will help in deployment of the new system by providing context to the changes being made and to help with user adoption of the new system.

Messages shared include knowledge of the ESInet project and the NG9-1-1 system, belief that the new system will be better than the current system, and that everyone's interests are represented and taken into consideration.

CSEC will continue to create webinars, video blogs, newsletters, toolkits, and provide workshops in an effort to keep all entities informed and prepared for the transition to NG9-1-1. It is an end goal to create NG9-1-1 Public Service Announcements (PSA) and a corresponding finalized toolkit for RPCs to utilize in their educational efforts of their staff and stakeholders.

H. NG9-1-1 & FIRSTNET

NG9-1-1 and FirstNet represent the two halves of the public's request for service and the public safety response:

- NG9-1-1 is a standards-based, all-IP emergency communications infrastructure enabling voice and multimedia communications between a 9-1-1 caller and a PSAP. NG9-1-1 is designed to provide access to emergency services from all connected communication sources.
- FirstNet network will provide the vital network connectivity between the PSAP and the first responders enabling the real time delivery of videos, photos and other high-speed data.

FirstNet is an independent authority within the U.S. Department of Commerce's National Telecommunications and Information Administration. FirstNet is governed by a 15- member Board composed of representatives from public safety; local, state and federal government; and the wireless industry. Signed into law on February 22, 2012, the Middle-Class Tax Relief and Job Creation Act created FirstNet. The law gives FirstNet the duty to ensure the building, deployment and operation of the first high-speed, nationwide wireless broadband network dedicated to public safety personnel and first responders. The public safety community fought hard to fulfill the 9/11 Commission's recommendation and encouraged Congress to pass legislation establishing a dedicated, reliable network for advanced data communications nationwide. During emergencies, public safety personnel need true priority access and preemption, which are not available on commercial networks.

The FirstNet network will improve citizen and responder safety and increase the efficiency and effectiveness of emergency response through cutting edge broadband communications. Public safety personnel using the FirstNet network can share applications, access databases, and provide better informed responses to incidents through integrated communications. FirstNet's goal is to provide public safety- grade reliability and nationwide coverage so all public safety personnel and first responders can count on the network when they are on the job. FirstNet establishes a nationwide standard of service while affording localized customization and control.

FirstNet provides mission-critical, high-speed data services to supplement the voice capabilities of today's Land Mobile Radio (LMR) networks. FirstNet will be used for sending data, video, images and text. The FirstNet network will also carry location information and eventually support streaming video. FirstNet also offers mobile, deployable technologies that can provide communication services during times of disaster such as hurricanes. In the future, FirstNet will also offer cellular voice communications such

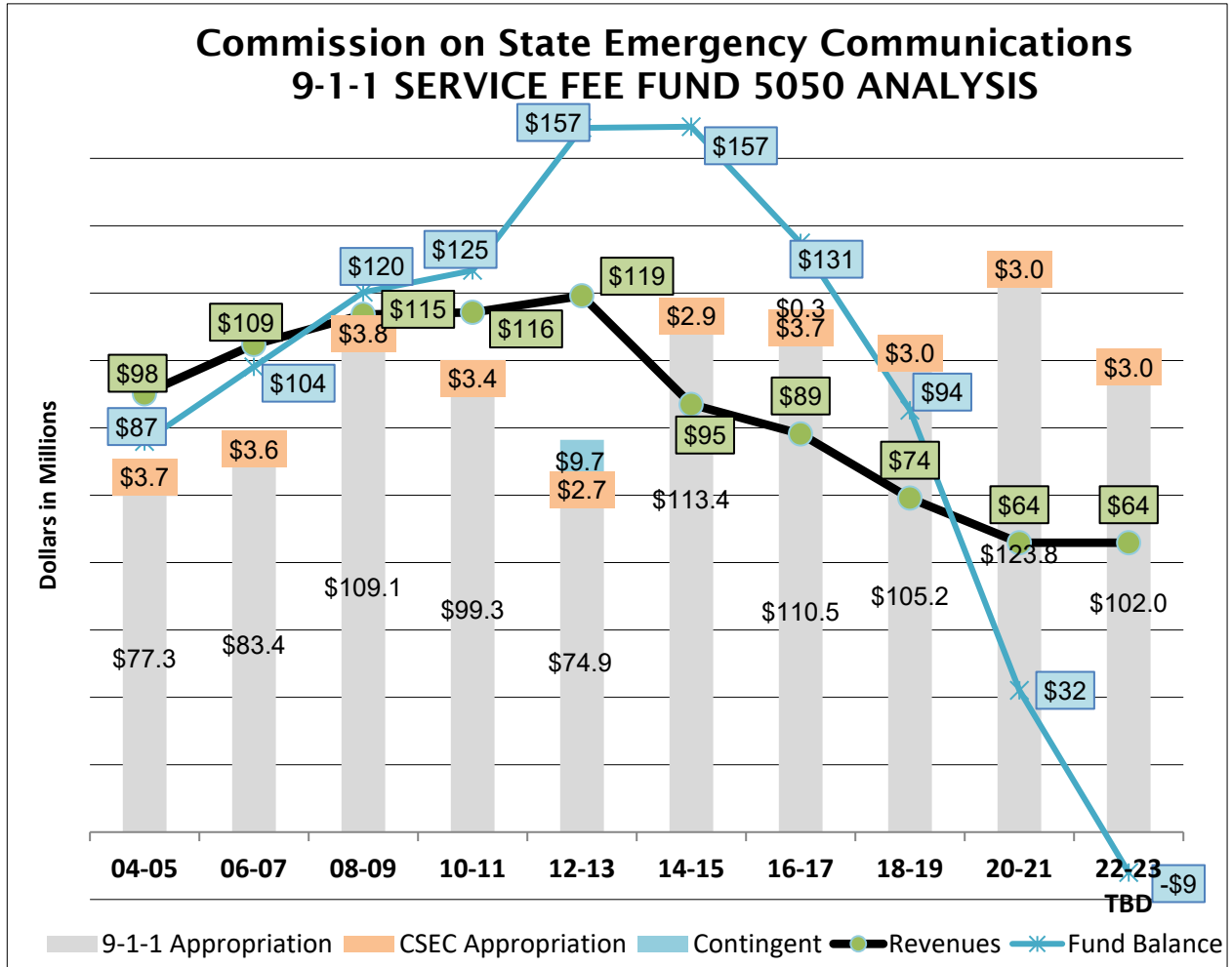
as Voice over Long-Term Evolution (VoLTE) or other alternatives.

NG9-1-1 and the FirstNet network are two separate but interconnected systems, both sharing critical information to first responders. The convergence of the NG9-1-1 networks and the FirstNet network at the PSAP will dramatically enhance public safety communications from the time a call originates from the public on the NG9-1-1 network to the PSAP, through the FirstNet network to the first responders. NG9-1-1 and the FirstNet network share common interests such as Cyber Security, Location Accuracy, the Validation and Use of Applications, Identity Management, and Network Coverage. As FirstNet develops a seamless and secure broadband communications network it will be responsible for ensuring that it interoperates and interconnects with NG9-1-1 networks.

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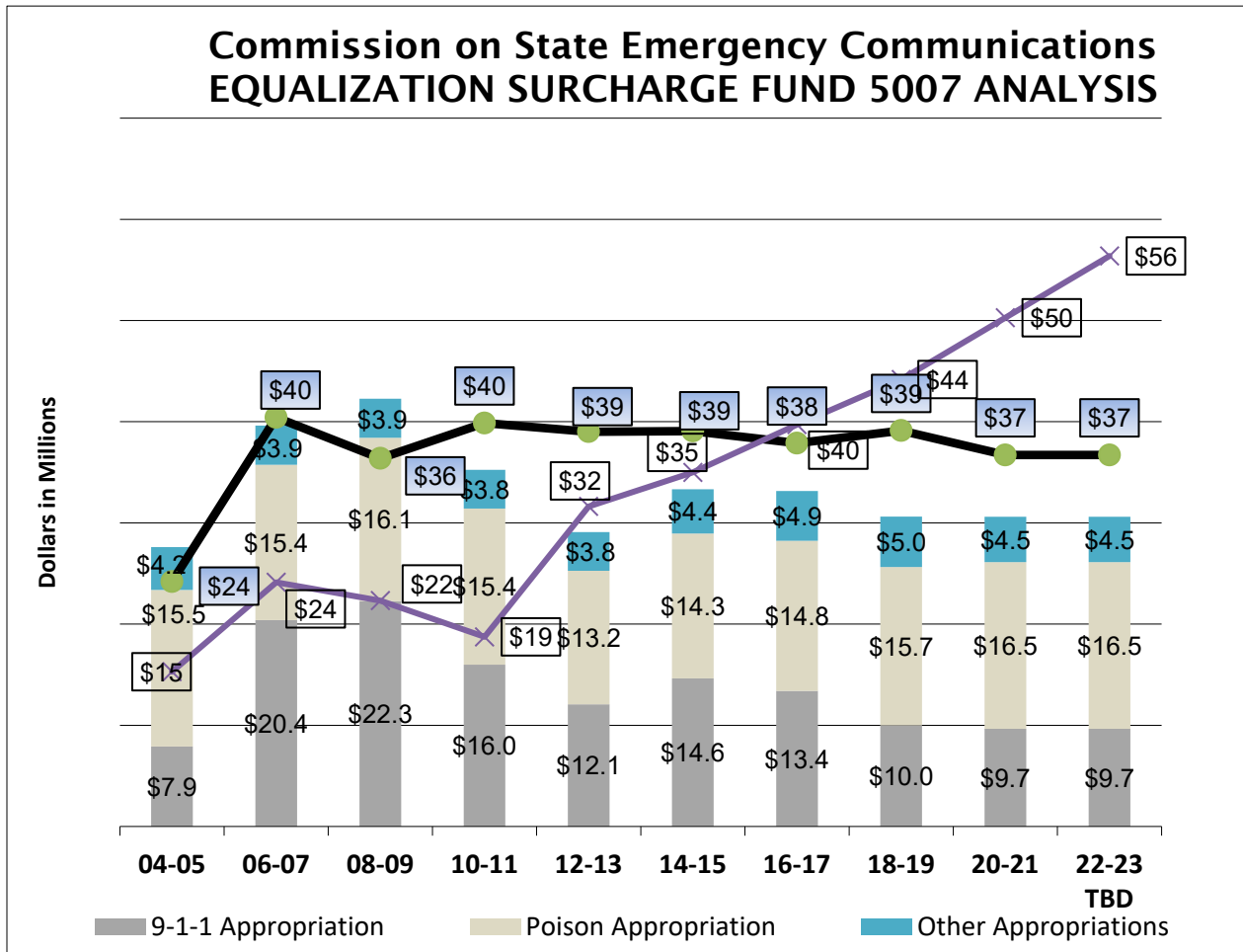
ATTACHMENT A: ANALYSIS OF DEDICATED ACCOUNTS

Table 1: 9-1-1 Service Fee Fund General Revenue – Dedicated Account 5050



Service Fees	Revenues	9-1-1 Appropriation	CSEC Appropriation	Contingent	Fund Balance
04-05	97.58	77.27	3.68		86.97
06-07	108.55	83.44	3.59		103.60
08-09	115.25	109.07	3.78		120.20
10-11	115.71	99.34	3.44		125.06
12-13	119.39	74.94	2.67	9.71	156.80
14-15	95.21	113.43	2.85		157.06
16-17	88.64	110.48	3.73	0.31	131.18
18-19	74.34	105.23	2.96	-	93.94
20-21	64.43	123.84	2.96		31.56
22-23 TBD	64.43	102.02	2.96		(8.99)

Table 2: Equalization Surcharge Fund General Revenue - Dedicated Account 5007



Surcharge	Revenues	9-1-1 Appropriation	Poison Appropriation	Other Appropriations	Fund Balance
04-05	24.20	7.90	15.48	4.23	15.29
06-07	40.42	20.39	15.36	3.86	24.13
08-09	36.38	22.27	16.15	3.85	22.32
10-11	39.86	15.99	15.42	3.83	18.74
12-13	39.01	12.07	13.20	3.83	31.63
14-15	39.07	14.64	14.30	4.37	34.99
16-17	37.88	13.40	14.83	4.93	39.71
18-19	39.12	9.99	15.65	4.99	44.17
20-21	36.71	9.65	16.48	4.48	50.27
22-23 TBD	36.71	9.65	16.48	4.48	56.38

ATTACHMENT B: GLOSSARY OF TERMS

The following are commonly used Acronyms	
<i>Acronym</i>	<i>Description</i>
ALI	Automatic Location Identification
BCF	Border Control Function
CIDB	Customer Information database
CPE	Customer Premises Equipment
CSEC	The Commission on State Emergency Communications
DBITS	Deliverables-based IT services
DIR	Department of Information Resources
E9-1-1	Enhanced 9-1-1
ECAC	Emergency Communication Advisory Committee
ECD	Emergency Communication District
ECRF	Emergency Call Routing Function
EGDMS	Enterprise Geospatial Database Management System
ESInet	Emergency Services IP-Enabled Network
ESRP	Emergency Services Routing Proxy
FCC	Federal Communications Commission
FY	Fiscal Year
GIS	Geographic Information Systems
i3	Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3) NENA 08-002
ICA	Interconnection Agreements
IdAM	Identity and Access Management
IETF	Internet Engineering Task Force
IP	Internet Protocol
IPsec	Internet Protocol Security
IPv6	Internet Protocol version 6
IT	Information Technology
LAR	Legislative Appropriation Request

The following are commonly used Acronyms

<i>Acronym</i>	<i>Description</i>
LDB	Location Database
LIF	Location Interworking Function
LIS	Location Information Server
LMR	Land Mobile Radio
LoST	Location to Service Translation
LVF	Location Validation Function
MECDA	Municipal Emergency Communications Districts Association
MoF	Method of Finance
MPLS	Multi-Protocol Label Switching
NIF	NG Interworking Function
NENA	National Emergency Number Association
NG9-1-1	Next Generation 9-1-1
NGCS	Next Generation Core Services (including core functions <i>i.e.</i> , BCF, ESRP with PRF, ECRF)
NG-SEC	Security for Next Generation 9-1-1 Standard Version 1 (NG-SEC) NENA 75- 001
NOC-to-NOC	Network operations center-to-network operations center
NSO	NG9-1-1 Service Offering
OSP	Originating Service Provider
OTT	Over the Top
P25	Project 25 (formerly APCO Project 25)
PIDF-LO	Presence Information Data Format – Location Objects
PIF	Protocol Interworking Function
PII	Personally Identifiable Information
POI	Points of Interconnection
PRF	Policy Routing Function
PSAP	Public Safety Answering Point or Primary Public Safety Answering Point
PUC	Public Utility Commission

The following are commonly used Acronyms

<i>Acronym</i>	<i>Description</i>
QoS	Quality of Service
RITA	Research and Innovative Technology Administration
RoIP	Radio over Internet Protocol
RPC	Regional Planning Commission
SaaS	Software as a Service
SCIP	Statewide Communications Interoperability Plan
SDO	Standards Development Organization
SIF	Spatial Information Function
SIP	Session Initiation Protocol
SLA	Service Level Agreements
TFOPA	Task Force on Optimal PSAP Architecture
TTY/TDD	Teletype/Telecommunications Device for the Deaf
URI	Uniform Resource Identifier
URN	Uniform Resource Name
USDOT	U.S. Department of Transportation
VoIP	Voice over Internet Protocol
VoLTE	Voice over Long Term Evolution
VPN	Virtual Private Network