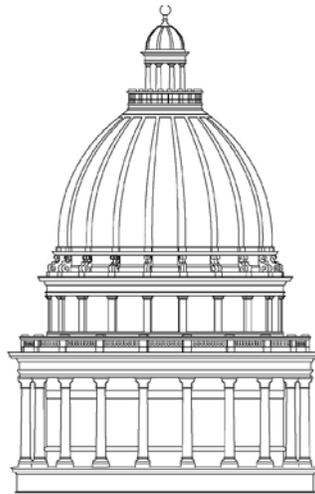


REPORT TO THE
UTAH LEGISLATURE

Number 2019-15



**A Performance Audit of the
Utah Communications Authority and
Statewide 911 Operations**

December 2019

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah



STATE OF UTAH

Office of the Legislative Auditor General

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KADE R. MINCHEY, CIA, CFE
AUDITOR GENERAL

December 13, 2019

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **A Performance Audit of the Utah Communications Authority and Statewide 911 Operations** (Report #2019-15). A digest is found on the blue pages located at the front of the report. The objectives and scope of the audit are explained in the Introduction.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

A handwritten signature in black ink that reads "Kade minchey".

Kade R. Minchey, CIA, CFE
Auditor General

Digest of A Performance Audit of the Utah Communications Authority and Statewide 911 Operations

In the 2019 General Legislative Session, the Legislature passed a bill to increase funding for the Utah Communications Authority (UCA) to build a statewide 911 network. As part of the debate surrounding that bill, UCA faced criticism from stakeholders on multiple fronts. Specific points of concern are described in detail in Chapter I. A significant effort was made as part of this audit to vet these concerns including interviewing dozens of stakeholders around the state and gathering substantiating evidence to support or refute the claims that were made. In addition to these claims against UCA, audit requestors asked that elements of statewide 911 emergency service be evaluated.

911 Call Taking Services in Utah Could Be Improved

A statewide analysis shows that the speed and efficiency of 911 call handling in Utah could improve by reducing 911 call transfers. When 911 calls are transferred, a delay is added to the time it takes to respond to emergencies. Though some stakeholders fear that closing down their small public safety answering points (PSAPs) is the obvious way to reduce transfers, we believe there are other options that should also be considered.

We also identified questionable practices with regards to PSAP staffing and training. Due to time constraints, we were unable to conclude our work in this area. We will continue our work in a separate audit as part of our in-depth follow up of the two 2016 audit reports referenced in Chapter I of this report.

UCA Should Continue to Work More Closely with PSAPs to Improve Utah's 911 Services

UCA receives restricted funding as part of an emergency service surcharge on Utah citizens' phone bills. UCA is legally responsible to use this restricted funding as incentive for PSAPs to improve Utah's 911 system. To this end, UCA should collaborate with PSAPs to identify inefficiencies and craft funding standards in Administrative Rule that will make Utah's 911 services faster and more efficient. UCA's current lack of funding standards falls short of statutory requirements.

UCA's Process for Upgrading and Building Sites Can Continue to Improve

Statute requires UCA to build and maintain a statewide public safety communications radio network. They are to do this in a cost-effective manner and, where possible, partner with public and private entities. There were general concerns about whether UCA was meeting these and other statutory requirements. We found that:

- Statutory restrictions on UCA's partnering options with private entities on radio tower sites may hinder UCA's ability to efficiently provide public safety radio communication.
- UCA is addressing past procurement concerns by expanding radio coverage through an open procurement process that appears consistent with state procurement code. However, elements of its procurement process still need to be improved.
- Contrary to expressed concerns of waste and inefficiencies, UCA's approach to constructing and maintaining radio tower sites and network infrastructure falls within legal limits and appears to be appropriate.

UCA Has Not Fully Facilitated Unified Communication on Public Safety Radios

Public safety communication in Utah occurs over multiple radio networks. Interoperability is the ability of public safety agencies to work together and communicate with one another across different radio networks. A lack of interoperability across networks can lead to problems in public safety coordination and communication. We found that UCA has not done enough to fulfill statutory requirements to facilitate interoperability between different radio systems in Utah as well as neighboring states.

UCA Board Is Generally Effective but Improvements Could Be Made

The Utah Communications Authority Board (UCA Board or board), as currently constituted in statute, has existed since mid-2017. We found that the board is generally providing good governance over UCA but improvements can be made with regards to financial control policies and the sharing of board meeting information.

It was reported to us that the Legislature considered moving UCA to the executive branch during the 2019 General Legislative Session. We found that because the UCA Board is providing adequate oversight, there is no clear advantage to doing so. Nevertheless, UCA may benefit from better collaboration with the Department of Technology Services and the Department of Transportation.

REPORT TO THE UTAH LEGISLATURE

Report No. 2019-15

A Performance Audit of the Utah Communications Authority and Statewide 911 Operations

December 2019

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Chapter I

Introduction

The Utah Communications Authority (UCA) is an independent state agency required by law to:

- Provide a statewide public safety radio network across Utah¹
- Review and coordinate public safety communications and technology needs
- Review and coordinate 911 emergency services, standards, and technology needs

The organization is governed by a board with nine voting and two non-voting members and receives a large portion of its funding from a handful of surcharges on phone lines. The surcharges are applicable to landlines, wireless phones, and voice over IP (VOIP) phone services.

Stakeholders Raised Multiple Complaints Against UCA During the 2019 General Legislative Session

In the 2019 General Legislative Session, the Legislature passed a bill to increase funding for UCA to build a statewide 911 network.² As part of the debate surrounding that bill, UCA faced criticism from stakeholders on multiple fronts. The criticisms were that:

- UCA had overstepped its authority by forcing unjustified requirements on local governments' 911 operations
- UCA had largely ignored feedback from stakeholders whose local budgets and operations were being affected by UCA's policy decisions
- UCA had wasted tax money by building needlessly redundant communications infrastructure

¹ This radio network is primarily used by police, fire, and medical first responders, in coordination with 911 dispatchers, to provide public safety services throughout Utah. It enables users to speak on handheld and in-vehicle radios.

² Senate Bill 154, 2019 General Legislative Session

UCA was created to coordinate multiple elements of public safety communications.

UCA faced criticism from stakeholders on multiple fronts during the 2019 General Legislative Session.

A significant effort was made as part of this audit to vet stakeholder concerns.

- UCA had overbuilt its communications network in order to sell excess bandwidth and equipment space in the open market, thereby competing unfairly with private industry

A significant effort was made as part of this audit to vet these concerns. This included interviewing dozens of stakeholders around the state and gathering substantiating evidence to support or refute the claims that were made. Our findings and recommendations are discussed in detail throughout this report.

UCA Historical and Operational Background

Because UCA's history and operations are complicated, we have provided a sketch of some of the key points that may be helpful as broader context to our report.

UCA Built and Operates a Statewide Public Safety Radio Network

UCA has its origins in the late 1990s when many state and local public safety entities coordinated and combined assets to create a unified 800-megahertz (MHz) radio communications network. This network has continued to grow and improve. In addition to the 800 MHz radio network, the radio network also contains sections of VHF radio coverage.

Utah's decision to create a single, statewide 800 MHz public safety radio network is different than other states in which different state agencies, cities, counties, or other regional jurisdictions fund and operate their own independent radio networks. In such systems, different radio frequencies and technology limit public safety personnel's ability to talk to one another which, in turn, limits how well they can respond to public safety needs.

Other western states we spoke with during this audit expressed envy of Utah's unified approach. UCA's 800MHz radio network has approximately 50,000 radios registered across the state and provides radio coverage in almost every county. Chapters IV and V will discuss challenges UCA faces as it works to build out the radio system as well as our recommendations for improvements.

UCA operates a statewide 800 MHz radio network in addition to VHF radio coverage.

UCA Governance Has Changed Significantly

In 2016, it was discovered that a large amount of money had been stolen over several years by a UCA employee. This, in addition to multiple audits performed by our office that year, prompted a significant restructuring of UCA. The board was drastically restructured by reducing the membership from 27 system users to 9 non-users. A new leadership team was put in place and many other changes were made to UCA's general governance and operations.

Additionally, statute created new regional advisory committees in 2017 but these committees never reached their full potential. Because regional committees largely failed to self-organize, the advisory committee structure was changed again in 2019. This change was viewed positively by many stakeholders. We reviewed many aspects of UCA's current governance according to standards and best practices. Chapter VI of this report presents those findings and recommendations.

Audit Scope and Objectives

Our audit is organized around the following questions as we discuss our audit findings and recommendations.

- **Chapter II:** How are 911 call transfers impacting the 911 emergency system?
- **Chapter III:** Is UCA executing its mission with regards to 911 service in the state of Utah?
- **Chapter IV:** Are UCA's infrastructure planning and procurement processes efficient, effective, and compliant with law?
- **Chapter V:** Is UCA adequately coordinating public safety communication interoperability?
- **Chapter VI:** Is governance of UCA adequate? Should UCA be moved into the Executive Branch?

We were also asked to perform an in-depth follow up of our office's 2016 audits of UCA. That follow-up work will be performed at the conclusion of this audit and a separate report will be issued.

UCA underwent a significant restructuring of its board after multiple audits and the discovery of fraud committed by an employee.



Chapter II

911 Call Taking Services in Utah Could Be Improved

A statewide analysis shows that the speed and efficiency of 911 call handling in Utah could improve by reducing 911 call transfers. When 911 calls are transferred, a delay is added to the time it takes to respond to emergencies. Though some stakeholders fear that closing down their small public safety answering points (PSAPs)³ is the obvious way to reduce transfers, we believe there are other options that should also be considered.

We also identified questionable practices with regards to PSAP staffing and training. Due to time constraints, we were unable to conclude our work in this area. We will continue our work in a separate audit as part of our in-depth follow up of the 2016 audit reports referenced in Chapter I of this report.

911 Emergency Call Transfers Should Be Reduced

Each PSAP dispatches a specific list of responders (police, fire, medical, etc.) in a limited geographical area. If an emergency 911 call is routed to a PSAP that does not serve either the need (police, fire, medical, etc.) or location of the caller, the call must be transferred to the PSAP that does. When such transfers happen, valuable time is lost simply getting the caller in contact with the PSAP that can provide help.

A delay in assistance can lead to disastrous consequences. In 2008, a Florida woman was fatally shot in front of a police department after a 911 call transfer delayed response by one minute. More recently, a 911 call for help with a choking child in Summit County was mistakenly routed to a PSAP in Salt Lake County then mistakenly transferred to the Park City Police Department. By the time the call was transferred to the Summit County Sheriff's Office and help was dispatched, it was too late, and the child died. This incident prompted

³ Public safety answering points are where 911 calls are received and emergency responders are dispatched. Some may also refer to them as simply "dispatch."

Transfers lead to delays in responding to emergencies.

A delay in assistance to a 911 call can lead to disastrous consequences.

A significant portion of transfers from PSAP to PSAP could be reduced.

discussions that led the Park City dispatch center to cease operations and merge with the Summit County Sheriff's Office PSAP.

To be clear, some transfers for things like language assistance or multi-jurisdiction response are unavoidable. It also bears mentioning that not all transfers involve life or death situations. Our focus was only on PSAP to PSAP transfers that could have potentially been avoided for the sake of safety, efficiency, or both. Figure 2.1 shows an overview of all transfers from PSAP to PSAP from 2015-2018.

Figure 2.1 From 2015-2018, the Percentage of 911 Calls Transferred from PSAP to PSAP Remained Fairly Constant. On average, more than 100,000 911 emergency calls are transferred from PSAP to PSAP each year.

	2015	2016	2017	2018
Total Statewide 911 Calls	1,165,726	1,109,352	1,064,374	1,059,347
911 Calls Transferred Between PSAPs	121,519	118,981	117,487	113,645
<i>Percentage</i>	<i>10.4%</i>	<i>10.7%</i>	<i>11.0%</i>	<i>10.7%</i>

Source: 911 Call Data from ECaTS, auditor analysis

Based on our findings, we believe that a significant portion of the transfers from PSAP to PSAP shown in Figure 2.1 could be reduced. Options for transfer reduction will be discussed later in this chapter.

911 Call Transfers Delay Emergency Response

National standards for 911 call handling state that 95 percent of all 911 calls should be answered within 20 seconds. This is based on the concept that seconds can sometimes be the difference between life and death in emergency situations. Rapid response should therefore be a core goal of all public safety providers.

If emergency calls must be transferred from PSAP to PSAP, valuable time is wasted in an attempt to simply route the call to the person who can dispatch help. Our analysis of more than 110,000 911 calls transferred between PSAPs in 2018 found that the median delay per transfer is 60 seconds. This echoes our office's 2009 audit of 911

National standards for 911 call handling state that 95 percent of all 911 calls should be answered within 20 seconds.

services in Salt Lake County where it was found that transferring 911 calls created a delay of about one minute to dispatch assistance.⁴

A consultant report prepared in 2012 for Utah’s former 911 Committee stated, “It is inevitable that calls requiring transfer to another agency will take longer to process than calls that do not require transfer.” If calls were routed to the correct PSAP first, this delay would be eliminated from emergency response.

We believe changes can be made to Utah’s 911 system to reduce 911 call transfers and allow public safety personnel to respond to emergencies more quickly. The following sections discuss the two main causes of 911 call transfers.

Technology Limitations Contribute To Unnecessary Call Transfers

Cellular phone towers do not provide coverage that conforms to county and municipal borders. This can make 911 call routing difficult. A cell tower that straddles a jurisdictional border does not distinguish between callers from one side of the border versus the other and can therefore send emergency calls to the wrong PSAP. This problem can be particularly difficult when multiple PSAPs exist near one another. For example, in 2018, call transfers between Salt Lake City 911, Salt Lake Valley Emergency Communications Center (VECC) and the Unified Police Department (UPD) accounted for approximately 40 percent of the state’s 911 call transfers.

In a 2018 Notice of Inquiry, the Federal Communications Commission (FCC) wrote, “Each time a wireless 911 call is “misrouted” and transferred . . . the call transfer process consumes time and resources in both the PSAP that initially receives the call and the PSAP to which the call is transferred, and the process ultimately delays dispatch and the ability of first responders to render aid.”

In late December 2015, a Georgia woman accidentally drove her car into a retention pond located 100 yards from a jurisdictional border. As her car was sinking, her 911 call was picked up by a cell tower in the adjacent county and routed to the wrong PSAP. It was reported that it took dispatchers several minutes to realize that the

⁴ See our 2009 report *A Performance Audit of the 911 System in Salt Lake County* (Report No. 2009-16 – pp. 19-28)

We believe changes can be made to Utah’s 911 system to reduce 911 call transfers and allow public safety personnel to respond to emergencies more quickly.

Tight-knit jurisdictions create areas where it is difficult to accurately route calls.

Incorrect call routing can lead to delays in dispatching emergency services.

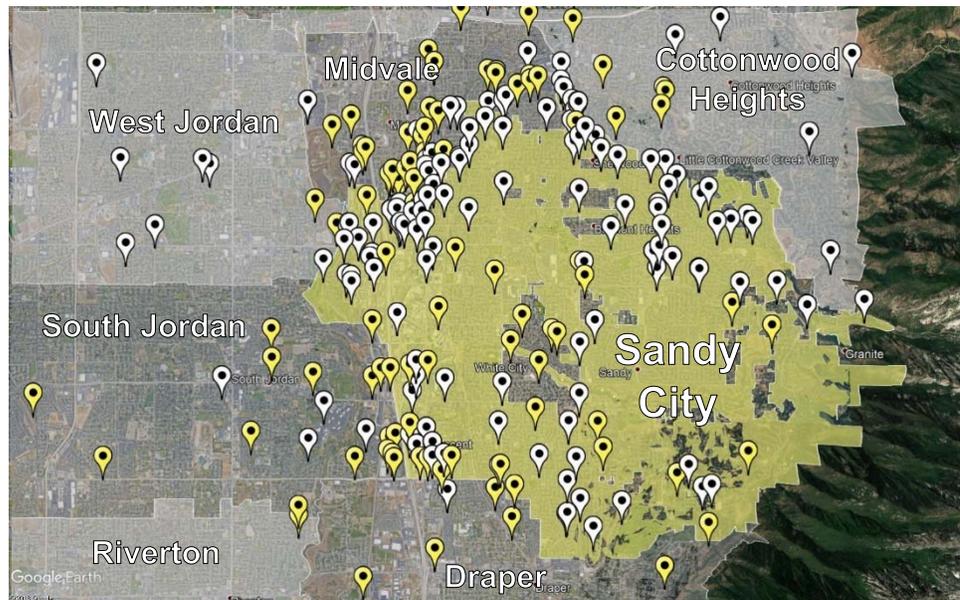
address was in the neighboring county, partially due to mapping software issues. When responders finally reached her, paramedics were able to restart her heart, but she later died in the hospital. The Chief of Technology at the public safety department that handled the call said, “If the phone had automatically routed to the correct jurisdiction, this very well may have had a different outcome.”

Utah has similar call routing problems. In Salt Lake County, Salt Lake City 911 (SLC911) dispatches for services in Sandy City. However, because areas around (and even within) Sandy are served by the Salt Lake Valley Emergency Communications Center (VECC), call routing becomes difficult and transfers result. For example, if a person in Sandy calls 911 near the border of Midvale, the call could route to VECC instead of SLC911. If law enforcement is needed, VECC must transfer the call to SLC911 who can then dispatch police.

Figure 2.2 illustrates this problem by showing call transfers made from SLC911 to VECC (see yellow markers) and from VECC to SLC911 (see white markers) during January 2019.

Tight-knight jurisdictions combined with inaccurate call routing lead to call transfers and delays.

Figure 2.2 Call Transfers Result When Service Areas Intertwine. Yellow markers show calls transferred from SLC911 to VECC. White markers show calls transferred from VECC to SLC911. These transfers could be eliminated if Sandy City received dispatch services from VECC.



Source: Auditor analysis of 911 Call Data from January 2019; extracted from ECaTS call tracking software; plotted in Google Earth along with Utah Automated Geographic Reference Center (AGRC) municipal boundary data

The hope is that better GPS location data, enabled by an upgraded 911 network, will greatly improve wireless call routing along jurisdictional borders. In the 2019 General Legislative Session, UCA received an increase in funding to build this new 911 network and they are currently working to do so. Additional options to fix cell phone call routing problems are highly technical.

Many Calls Are Transferred in Areas Served by Multiple PSAPs

911 calls are also transferred when the Utah Highway Patrol (UHP) is dispatched from a PSAP outside (or secondary to) the caller's local jurisdiction. In 2018, UHP-related 911 calls accounted for approximately 40 percent of statewide call transfers. This happens on much of the Wasatch Front and in multiple rural areas of the state. For example, if a person is driving on Interstate 15 in Fillmore and they call 911 to report a dangerous driver, the call will route to the Millard County Sheriff's Office (MCSO) PSAP. Once MCSO realizes the person needs help from UHP, MCSO will transfer the call to the DPS Richfield PSAP who will then dispatch UHP.⁵

Our analysis of 911 call transfers found that areas of the state where multiple PSAPs serve the same county, call transfer rates are generally much higher. Again, it is important to note that we sought to measure only 911 calls transferred from one PSAP to another. We focused on these because these transfers diminish the quality of service to 911 callers by delaying emergency response. There are other types of transfers that are necessary and unavoidable; we worked to remove those from the analysis. Figure 2.3 illustrates these findings.

Better GPS location data may improve wireless call routing after the 911 network is upgraded.

Another cause of transfers is when the Utah Highway Patrol is dispatched from a PSAP outside the primary jurisdiction.

⁵ It is even more complicated when fire and/or medical responders are needed on such calls. Typically, the city/county PSAP will keep those calls to dispatch fire/medical (i.e., instead of transferring them to the PSAP serving UHP) then use common radio channels to request response from troopers or from the troopers' PSAP.

Figure 2.3 Counties Served by Multiple PSAPs Generally Experience More Call Transfers. Better alignment of PSAP coverage could eliminate many of these transfers.

Call transfer rates are generally higher in areas of the state where multiple PSAPs provide service within one county.

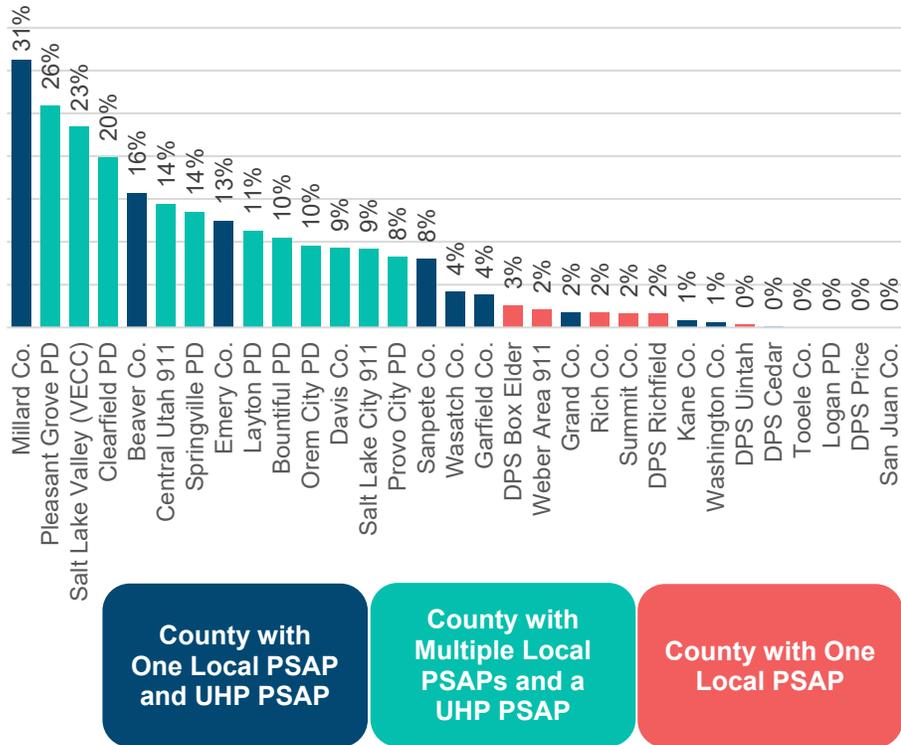


Figure 2.3 shows a clear pattern of higher transfer rates being associated with separate UHP dispatching and counties with multiple PSAPs. Based on Figure 2.3, we believe that adjustments can be made to reduce transfers and, as a result, reduce the time it takes to dispatch assistance to individuals calling 911 for help.

Multiple Options Exist to Reduce 911 Call Transfers

To reduce transfers, multiple PSAPs could work together to adjust service areas and coordinate emergency response through dispatch software connections. Even with greater collaboration, reducing call transfers along the Wasatch Front presents unique challenges due to the large call volume and large numbers of PSAPs.

Adjusting Service Areas Could Reduce Transfers

Adjusting PSAP service areas could reduce the number of call transfers. In Millard County for example, allowing the Millard County Sheriff's Office (MSCO) to dispatch UHP (instead of the Department of Public Safety PSAP in Richfield) would significantly reduce call transfers in that area. Alternatively, the MSCO could opt to close its PSAP and contract with DPS in Richfield for PSAP services and achieve a similar outcome. Similar adjustments could be made in Juab, Emery, and Sanpete Counties.

We found that Washington, San Juan, Grand, and Kane Counties have already informally made such adjustments. That is, these PSAPs have decided to dispatch UHP calls to one degree or another instead of transferring calls to UHP PSAPs. These counties have done so without any formal agreement or reimbursement for those services. Figure 2.3 clearly shows the effect of these decisions with Grand, Kane, Washington, and San Juan Counties transferring from zero to two percent of calls.

In light of this information, we recommend the Department of Public Safety work with local PSAP stakeholders throughout the state to reduce call transfers. This will likely require collaboration in multiple areas to address different locations' specific challenges.

Creating CAD-to-CAD Connections Could Reduce Transfers

Software options that connect different jurisdictions' computer-aided dispatch (CAD) systems could also reduce transfers.⁶ By connecting CAD systems, one PSAP can take a call and instantly share call data with a PSAP in another jurisdiction. PSAPs can therefore eliminate the need for a call transfer because the necessary information instantly appears on the dispatcher's screen, even if that dispatcher is in another city, and a response can be initiated while the call is still in progress.

⁶ This can take different forms. Multiple jurisdictions could share a single CAD program on a common server. Others could use special software bridges to connect different CAD platforms. The end result is a system that shares call information without the need to transfer the phone call.

Adjusting how UHP is dispatched in Millard County could significantly reduce call transfers in that area.

Washington, San Juan, Grand, and Kane Counties have decided to dispatch UHP in their respective areas instead of transferring calls to UHP PSAPs.

**CAD-to-CAD
Connections appear to
be reducing call
transfers in certain
areas.**

However, software alone will not reduce transfers. First, the software must provide the needed functionality and perform reliably. Multiple Utah PSAPs report problems with their CAD-to-CAD connections and difficulties in getting them back online when broken. Second, the full benefits of CAD-to-CAD technology require a deliberate coordination of efforts among multiple jurisdictions. This could involve standard call-taking procedures and a willingness to allow other jurisdictions to take calls on a PSAP's behalf.

We see this approach yielding positive results in certain areas. Since 2004, Utah County has used one single CAD system for all five of the county's PSAPs. This means that they are able to share call data seamlessly across jurisdictions. With this functionality, the intracounty transfer rate among the five Utah County PSAPs in 2018 was only 3.9 percent.⁷ Similarly, the Bountiful PSAP reports that as it has worked to repair the CAD connection between its PSAP and the Davis County Sheriff's Office this year, call transfers have fallen significantly.

Reducing Call Transfers Along the Wasatch Front Presents Unique Challenges

Call transfers along the Wasatch Front involve a combination of the previously described problems. First, as previously shown, there are multiple PSAPs that transfer calls among themselves as wireless callers are initially misrouted to the wrong PSAP or move across jurisdictional lines during a call. Second, there is the added complexity of UHP being dispatched from a secondary location in most parts of three of the four counties. Call transfers for UHP response represent the majority of call transfers in the Wasatch Front counties. Figure 2.4 illustrates the PSAP coverage in the four Wasatch Front counties.

⁷ Reviewing the transfer numbers, the vast majority of transfers from Utah County PSAPs in 2018 were for UHP-related incidents.

Figure 2.4 Three of Four Wasatch Front Counties Have Several PSAPs. The number of PSAPs and the overlapping coverage for UHP creates a high number of 911 call transfers in these areas. By comparison, as shown in Figure 2.3, Weber County has a low transfer rate.

	Local PSAPs <i>Dispatch for Local Law Enforcement, Fire, EMS</i>	Utah Highway Patrol
Davis County	Layton PD	Davis County Sheriff
	Bountiful PD	
	Clearfield PD	
	Davis County Sheriff	
Salt Lake County	Salt Lake City 911	Dept. of Public Safety Salt Lake Center**
	Salt Lake Valley Emergency Communications Center (VECC)	
Utah County	Central Utah 911*	
	Provo PD	
	Orem PD	
	Springville PD	
	Pleasant Grove PD	
Weber County†	Weber Area 911	

Source: Auditor analysis of PSAP service areas

* CU911 covers the parts of Utah County the other PSAPs do not. It also covers Juab County.

**The DPS Salt Lake center does not receive direct 911 calls. It only takes calls transferred from primary PSAPs (i.e., those listed as Local PSAPs in the figure above).

† Weber Area 911 also dispatches all services in Morgan County.

Both of the two main causes of call transfers, technological and jurisdictional issues, are present in most of the Wasatch Front. Most PSAPs in Davis, Salt Lake, and Utah Counties have tight-knit jurisdictional boundaries *and* UHP dispatched from an outside agency. Therefore, their eleven PSAPs are all among those with the highest transfer rates (8-26 percent) shown previously in Figure 2.3.

In contrast, Weber County is a similarly urban area but established a fully consolidated PSAP several years ago. Weber Area 911 dispatches responders for all services in both Weber and Morgan Counties and is seen in Figure 2.3 to have a transfer rate of only two percent.

Both of the two main causes of call transfers are present in most of the Wasatch Front.

Weber County dispatches responders for all services in Weber and Morgan Counties and has a 911 call transfer rate of two percent.

UCA Should Use the State 911 Account as Incentive to Improve the Statewide 911 System

In our opinion, something should be done to better align services and decrease 911 call transfers around the state. The Legislature created the Unified Statewide 911 Emergency Service Account (state 911 account) for UCA to use as incentive for PSAPs to make such changes. However, based on our findings in this audit and an audit in 2016, we do not believe that this funding has ever been tied to PSAP standards as statute requires. The statutory objectives of the state 911 account are laid out in Figure 2.5.

Restricted 911 funding has never been tied to PSAP standards as statute requires.

Figure 2.5 The Unified Statewide 911 Emergency Service Account Was Created to Improve Statewide 911 Service.

Specifically, 911 callers should expect direct and rapid access to emergency assistance.

Purpose of Funding	Utah Code Reference
Enhance and maintain the statewide public safety communications network in order to rapidly and efficiently deliver 911 services in the state	63H-7a-304(2)(a)
Promote statewide public safety, promote interoperability, impact the largest service territory, impact densely populated areas, impact underserved areas	63H-7a-304(2)(b)
Realize the UCA strategic plan to develop and expand the public safety network and improve statewide interoperability and coordination	63H-7a-304(2)(c) 63H-7a-206
Provide for a unified statewide communication system that provides a user with direct access to a [PSAP] by dialing or accessing 911	63H-7a-304(2)(e) 69-2-102(2)
Make use of <i>Administrative Rule</i> to set criteria, standards, technology, and equipment that a PSAP must adopt in order to qualify for goods or services that are funded from the restricted account	63H-7a-302(5)(a)

Source: Utah Code

As Figure 2.5 shows, the Legislature envisioned that the money in the state 911 account would be used as incentive for improvements in 911 service speed, efficiency, and interoperability. Consultants reviewing Utah’s system in 2016 recommended an incentive-based approach as opposed to a legislative mandate.

Using funding as an incentive for improvements in 911 services has been recommended by consultants.

However, our 2016 audit of this restricted funding found that the former process to award these funds was "...inconsistent and [raised] questions regarding whether the statutory intent of an efficient and effective state 911 system [was] being served."⁸ At that time, we observed that UCA had failed to create standards that would leverage the funding to actually improve statewide 911 operations. Because the lack of funding standards persists today, we do not believe this fund has ever been tied to PSAP standards as statute requires.

Supporting the 2016 audit interpretation, a state senator who has sponsored multiple bills that have shaped the statute governing this restricted 911 funding, stated in an April 2018 letter to the UCA Board,

“[This] is not about business as usual or just getting more money. It is about helping you do your jobs better and with better resources. It is about service. ... As the sponsor of the legislation, the intent is to improve 911 services that are currently being provided.”

We maintain our 2016 opinion that UCA’s role in Utah is to provide financial incentives for PSAPs to improve 911 services. As part of its effort to fulfill the legal purpose of the state 911 account, UCA should create minimum operational standards that require PSAPs to reduce transfers below a certain threshold. The issue of call transfers seems to touch on all three goals set forth in statute. Namely, that 911 service become increasingly fast, efficient, and interoperable.

Stakeholders Have Also Debated Whether UCA's Restricted 911 Funding Should be Conditioned Upon UCA's Standards. However, the law is very clear that compliance with the standards *must* be a condition of funding.⁹ The only question is what those standards should be. This statutory requirement has been largely unchanged since the restricted 911 fund was created in 2004. Chapter III discusses these requirements for standards in greater detail.

UCA’s role is to provide financial incentives for PSAPs to improve 911 services.

UCA should create minimum operational standards that require PSAPs to reduce transfers below a certain threshold.

⁸ See our 2016 report *A Review of the Administration of 911 Surcharges* (Report No. 2016-02 – pp. 27-34)

⁹ *Utah Code* 63H-7a-302(5)(a)

Beyond Reducing Transfers, Other Funding Standards Could Be Appropriate

As also discussed in greater detail in Chapter III, UCA should work with 911 stakeholders to identify other inefficiencies in the state 911 system that could be the subject of additional UCA funding standards.

In light of our findings that UCA's Interoperability Division could do more to coordinate communications, UCA should also consider a funding standard requiring PSAPs to routinely participate in interoperability exercises. PSAPs are often at the center of radio interoperability issues and could benefit from more consistent training exercises to ensure first responders can communicate effectively. Chapter V provides additional detail about these issues.

Additional Audit Work is Needed Regarding PSAP Staffing

Our audit found that PSAPs in the state are satisfying staffing and training needs in sometimes questionable ways. For example, we found multiple PSAPs that routinely allow individuals to answer emergency calls without legally required Emergency Medical Dispatcher (EMD) certification. One PSAP we visited had EMD-trained staff but did not actually use the EMD protocols to give pre-arrival medical instructions to emergency callers.

In addition, multiple PSAPs in the state staff only one telecommunicator during parts of the day or night. If that person is busy responding to an emergency call and another emergency call comes in, there is a high likelihood that the telecommunicator will not be able to provide the best service possible to both callers. We were also told of instances where telecommunicators were incapacitated for other reasons (e.g., medical emergency, something happened in the jail that needed immediate attention) and could not tend to the phone lines.

The large amount of work required to develop the other audit areas in this report left us without sufficient time to conclude our work with these PSAP staffing/training questions. Our investigation into the root causes and solutions to these problems will therefore be

UCA should consider requiring PSAP participation in interoperability exercises as a funding requirement.

PSAPs in the state are satisfying staffing and training needs in sometimes questionable ways.

PSAP staffing issues will be addressed in a separate audit.

continued in a separate audit as part of our in-depth follow up of the two 2016 audit reports referenced in Chapter I of this report.

Recommendations

1. We recommend that the Department of Public Safety work with local PSAP stakeholders throughout the state to reduce call transfers. This will likely require collaboration in multiple areas to address different locations' specific challenges.
2. We recommend that the Utah Communications Authority, as part of its effort to fulfill the legal intent of the state 911 account, create minimum operational standards that require PSAPs to reduce transfers below a certain threshold.
3. We recommend that the Utah Communications Authority work with 911 stakeholders to identify other inefficiencies in the state 911 system that could be the subject of additional UCA funding standards.
4. To enhance radio interoperability as discussed in Chapter V of this report, the Utah Communications Authority should consider a requirement that PSAPs routinely participate in interoperability exercises as a condition of receiving restricted funding from the Unified Statewide 911 Emergency Service Account.



Chapter III

UCA Should Continue to Work More Closely with PSAPs to Improve Utah's 911 Services

The Utah Communications Authority (UCA) receives restricted funding as part of an emergency service surcharge on Utah citizens' phone bills. UCA is legally responsible to use this restricted funding as incentive for public safety answering points (PSAPs) to improve Utah's 911 system.¹⁰ To this end, UCA should collaborate with PSAPs to identify inefficiencies and craft funding standards in *Administrative Rule* that will make Utah's 911 services faster and more efficient. UCA's current lack of funding standards falls short of statutory requirements.

UCA's current lack of funding standards falls short of statutory requirements.

UCA Has Worked to Better Balance Competing Legal Mandates

UCA was aggressive in its 2018 push to put standards in place for 911 services, causing friction between UCA and PSAPs. UCA's mission, as laid out in statute, suggests that a collaborative approach would be more appropriate.

UCA is Legally Charged to Both Collaborate with PSAPs and Push Them to Improve

When it comes to interacting with the state's 911 emergency system, UCA has been given two legal mandates that may not always be easy to balance. That said, we believe it can be done. If UCA can collaborate with PSAPs to identify inefficiencies in the 911 system, then use the UCA 911 funding as incentive for improvement, we believe statewide 911 services can be improved. By necessity, this approach requires PSAPs to be candid about ways to improve, like those discussed previously in Chapter II.

UCA's mission suggests a collaborative approach would be more appropriate for developing PSAP standards.

¹⁰ Public safety answering points, referred to as "PSAPs" (pronounced pea-sap), are the locations where 911 calls are received and emergency responders are dispatched. Some people may also refer to a PSAP as simply "dispatch."

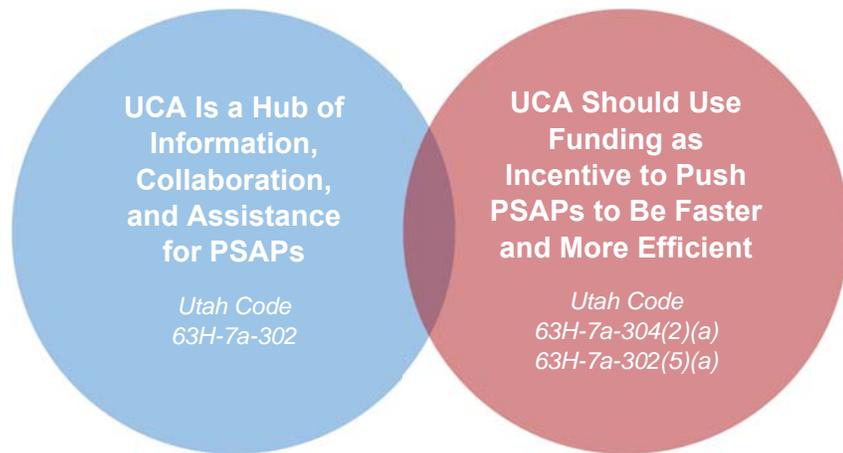
UCA's role as a central point of contact is especially important because nearly all PSAPs operate independently of one another and of UCA.

UCA's competing legal mandates are as follows. First, statute says that UCA's 911 Division should be a statewide hub of information, collaboration, and assistance among the 31 PSAPs in the state.¹¹ UCA's role as a central point of contact is especially important because Utah's PSAPs operate under city, county, or state management. The PSAPs nearly all operate independently of one another and of UCA.

However, in addition to serving as a point of collaboration, the law also directs UCA to use its restricted 911 funding as incentive to create a more rapid and efficient 911 system. To this end, UCA is legally required to create minimum standards that PSAPs must satisfy to gain access to the funding. Efforts by UCA to set standards have led PSAP directors, sheriffs, and police chiefs to criticize what they see as the state telling them how to run their local operations. This standard setting process has led to conflict between UCA and PSAPs, which could undermine UCA's legal mandate to create a more unified 911 system. Figure 3.1 illustrates these two competing mandates.

Figure 3.1 Two of UCA's Legal Mandates May Be Difficult to Balance, but It Can Be Done. PSAPs have historically resisted efforts to encourage operational change.

We believe UCA can balance competing legal mandates.



UCA should work to better involve PSAPs and build consensus around ways to improve Utah's collective 911 system. This also means that PSAPs must be candid about inefficiencies that may exist in their PSAPs and open to ideas for how to improve. For example:

¹¹ See *Utah Code* 63H-7a-302 for the list of specific duties and powers of UCA's 911 Division.

- Some PSAPs transfer a high number of emergency calls to other PSAPs, delaying emergency response.
- There are lingering questions about the most effective and efficient way to staff PSAPs. This has been a main point of contention between PSAPs and UCA.

By working together to identify and eliminate inefficiencies, UCA and PSAPs can create substantial improvements to 911 service in Utah. The following section describes an example of UCA leaning too heavily on its mandate to improve 911 service and not enough on its mandate to collaborate.

UCA Should Have Communicated Better When Implementing the PSAP Staffing Standard

Throughout 2018, UCA and PSAPs had contentious discussions about minimum PSAP staffing standards. This diverted attention and energy from the work of actually making 911 services in Utah better. As required by law, UCA created minimum standards for PSAPs in early 2018.¹² Included in those standards was a requirement that all PSAPs staff a minimum of 2 dispatchers, 24-hours per day, 7-days per week. Although sheriffs and PSAP directors we interviewed clearly believe that PSAP standards in general are both necessary and good, many disagreed sharply with UCA's minimum standard for PSAP staffing.

Although we have concerns with certain PSAP staffing practices (discussed briefly in Chapter II), we generally agree with PSAP directors, sheriffs, and police chiefs that UCA could have done more to listen to PSAPs' legitimate concerns and create more realistic requirements.

Despite Attempts by Sheriffs and PSAPs to Plead Their Case, UCA Refused to Adjust the Standard. The discussion of PSAP standards in the April 2018 UCA Board meeting clearly reflected the tension between UCA and PSAPs. Six months later, an October 2018 email from UCA to PSAPs stated, in part, "...[UCA is] not willing to consider an exception to [the staffing] standard....PSAPs should not

UCA and PSAPs could create substantial improvements to 911 service in Utah by working together to identify and eliminate inefficiencies.

UCA could have done more to listen to PSAPs' legitimate concerns and create more realistic requirements.

¹² *Utah Code* 63H-7a-302(1)(a)

Nearly all sheriffs and PSAP directors expressed frustration with the inflexibility of UCA's position on minimum staffing.

be PSAPs without incurring the expense of staffing; it's a cost of doing business. We understand this is a direct and uncompromising answer.”

As we interviewed sheriffs and PSAP directors, nearly all expressed frustration with the inflexibility of UCA's position on minimum staffing. Following pressure from PSAPs during the 2019 General Legislative Session, UCA modified the staffing standard and started working more openly with PSAP directors to revise the standards. PSAPs now report a much higher level of satisfaction with the overall job UCA is doing.

Given the prolonged frustration of UCA's law enforcement and PSAP stakeholders, and present fears that UCA will return to a heavy-handed approach in the future, we recommend that UCA continue to work to better assist and collaborate with PSAPs going forward.

UCA Has Not Created Legally Required Funding Criteria

Statute contains two separate mandates for UCA to create 911-related standards.

- The first mandate is more general and does not contain any mechanism for oversight or enforcement.¹³ It appears that UCA has satisfied this requirement by creating general administrative and operational PSAP standards in its strategic plan.
- The second mandate directs UCA to create standards in administrative rule that PSAPs must meet to qualify for restricted funding.¹⁴ These funding standards should make 911 service in Utah more rapid and efficient. UCA has not satisfied this requirement.

It is not clear whether these two mandates are connected. That is, it is not clear whether the more general standards from the first mandate should be used as the funding standards for the second mandate or if an entirely separate standard should be established for funding. Regardless, UCA should work to create funding standards in

¹³ *Utah Code* 63H-7a-302(1)(a)

¹⁴ *Utah Code* 63H-7a-302(5)(a)

Statute contains two separate mandates for UCA to create 911-related standards.

Administrative Rule as required by law. To that end, the Legislature should consider modifying statute to make the purpose of UCA’s funding and standards clearer.

UCA Has Satisfied the Requirement to Create General Administrative and Operational PSAP Standards

In 2018, UCA adopted a set of administrative and operational PSAP standards. This is responsive to the requirement in *Utah Code* 63H-7a-302(1)(a) which states:

The 911 Division shall develop and report to the director minimum standards and best practices for public safety answering points [PSAPs] in the state, including minimum technical, administrative, fiscal, network, and operational standards for public safety answering points and dispatch centers in the state...

These PSAP standards touch on topics like staffing, call handling protocols, training, and quality assurance and are documented in the UCA Board-approved 911 Strategic Plan, which is also required by law. It therefore appears that UCA has fulfilled the legal requirement cited above.

It is not clear, however, exactly how these standards should be used throughout Utah’s 911 system. These standards are not explicitly tied to any sort of oversight or enforcement mechanism. It is not clear whether PSAPs must adopt them or whether consequences exist for failure to comply. The Legislature may therefore want to clarify the intent of the PSAP minimum standards and best practices required by *Utah Code* 63H-7a-302(1)(a).

UCA Should Adopt Funding Standards In Administrative Rule

In addition to the minimum standards and best practices described above, UCA is required to adopt rules to administer its restricted 911 funding, including “...the criteria, standards, technology, and equipment that a [PSAP] is required to adopt in order to quality for goods or services that are funded from the restricted account.”¹⁵ To date, no such funding standards exist.

¹⁵ *Utah Code* 63H-7a-302(5)(a)

UCA adopted a set of administrative and operational PSAP standards in 2018.

It is not clear exactly how current PSAP standards should be used throughout Utah’s 911 system.

UCA has not adopted statutorily required rules to administer its restricted 911 funding.

Multiple outside reviews emphasize UCA's need for standards to leverage funding to create positive change in Utah's 911 system.

Our February 2016 audit of this restricted account found the same lack of funding guidance. In that audit, we recommended that the 911 Division "...draft clear grant standards to add to administrative rule and submit them for adoption by the UCA Board."¹⁶ UCA has not implemented that recommendation. In addition to our audit, consultants in 2012¹⁷ and again in late 2016 emphasized UCA's need for standards to leverage funding and create positive change in Utah's 911 system.

We understand that UCA's history since 2016 has been turbulent. The agency has dealt with

- The fallout from a substantial employee fraud
- The wholesale restructuring of its governing board
- The transition to an entirely new leadership team
- The completion of multiple parts of a complex agency strategic plan
- An RFP to overhaul the state's large and complex radio network
- Multiple lawsuits revolving around the results of that RFP

Although UCA has only had responsibility over the restricted 911 funds since 2014, the requirement for UCA to create funding standards in administrative rule was enacted in 2004 when the fund was created. The requirement that the funding be used to enhance the speed and efficiency of 911 services has been in place since 2015. With large 911-related projects currently in development, standards for funding should be created in *Administrative Rule* as soon as possible to fulfill statutory intent to create incentive for change and hold PSAPs accountable for UCA's restricted funding.

As UCA works to create funding standards, we believe two things could better balance UCA's competing legal mandates. First, UCA should continue to collaborate with PSAPs to identify systemwide inefficiencies and ineffectiveness and craft funding standards in *Administrative Rule* that make Utah's 911 services faster and more efficient. In our view, *collaboration* would involve a few elements:

¹⁶ *A Review of the Administration of 911 Surcharges* (Audit No. 2016-02, February 2016); see pages 18-20

¹⁷ At this time, the Utah 911 Committee was not yet associated with UCA.

- UCA should continue to take a more open approach than that taken in 2018, seeking to better understand the true nature and variability of PSAP operations in Utah and crafting standards that make sense on a broad, sensible basis.
- UCA and its stakeholders would recognize that its role is to set standards and award its restricted funding based on compliance with those standards as a means to influence the state 911 system.
- PSAP directors, sheriffs, police chiefs, and other local leaders would actively participate in identifying system inefficiencies and ineffectiveness, even if doing so would force them to change how their PSAPs operate.

Second, the Legislature may want to consider how to strengthen and/or clarify the direction given in *Utah Code* 63H-7a-304(2) to give UCA a clearer mandate to hold PSAPs accountable for 911 service improvements in exchange for its restricted funding. With more direct legal language guiding UCA funding standards, PSAPs may be more willing to collaborate with UCA toward these statutory objectives. This concept echoes recommendations made in our office's 1999 and 2009 audits of 911 services. In both of those reports, we recommended that the Legislature consider empowering a state-level body to provide leadership and encourage a more efficient organization of Utah's 911 system.¹⁸ Chapter II of this report discusses certain aspects of 911 services we feel could be improved in Utah and how those might impact UCA's funding standards.

PSAPs may be more willing to work with UCA toward statutory objectives if UCA's role is clarified or strengthened.

Recommendations

1. We recommend that the Legislature consider clarifying the intent of the PSAP minimum standards and best practices as required by Utah Code 63H-7a-302(1)(a), particularly in relation to the requirement in Utah Code 63H-7a-302(5)(a).
2. We recommend that the Utah Communications Authority collaborate with PSAPs to identify systemwide inefficiencies

¹⁸ See our 2009 report *A Performance Audit of the 911 System in Salt Lake County* (Report No. 2009-16 – pp. 15-17) and our 1999 report *A Performance Audit of the 9-1-1 System in Utah* (Report No. 1999-10 – pp. 5-18)

and ineffectiveness and craft funding standards in Administrative Rule that will make Utah's 911 system more rapid, efficient, and interoperable.

3. We recommend that law enforcement, PSAP directors, and other PSAPs work with the Utah Communications Authority to identify funding standards that will make Utah's 911 system more rapid, efficient, and interoperable.
4. We recommend that the Legislature consider how to strengthen and/or clarify the direction given in Utah Code 63H-7a-304(2) to give the Utah Communications Authority a clearer mandate to use its funding to improve 911 services in Utah.

Chapter IV

UCA's Process for Upgrading and Building Sites Can Continue to Improve

Statute requires the Utah Communications Authority (UCA) to build and maintain a statewide public safety communications radio network. They are to do this in a cost-effective manner and, where possible, partner with public and private entities. There were general concerns about whether UCA was meeting these and other statutory requirements. We found that:

- Statutory restrictions on UCA's partnering options with private entities on radio tower sites may hinder UCA's ability to efficiently provide public safety radio communication.
- UCA is addressing past procurement concerns by expanding radio coverage through an open procurement process that appears consistent with state procurement code. However, elements of its procurement process still need to be improved.
- Contrary to expressed concerns of waste and inefficiencies, UCA's approach to constructing and maintaining radio tower sites and network infrastructure falls within legal limits and appears to be appropriate.

Constraints on UCA Partnerships May Lead to Higher Costs and Overbuilding

As UCA works to build its communications infrastructure, statute requires it to be cost effective and avoid duplicating existing facilities. However, statute also limits how UCA can partner with private entities. These legal requirements, taken together, can lead to inefficiencies. In the past, UCA entered into mutually beneficial agreements with private entities but these may have to end due to 2019 statute changes. The Legislature could consider modifying statute to allow UCA to maintain existing partnerships and enter into new partnerships with telecommunication companies (telecoms). These existing partnerships appear similar to those used by the Utah Department of Transportation (UDOT) and all surrounding states with statewide radio systems.

Statute requires UCA to build and maintain its public safety radio network in a cost-effective manner and partner with public and private entities.

Limitations on UCA's ability to partner with private entities can lead to inefficiencies.

For additional context, a radio tower site typically consists of a tower where radio hardware is mounted, an adjoining building for the bulk of the radio equipment, and a backup generator with one or more fuel tanks. A site is also generally connected to the rest of the radio network through microwave radio or fiber optic data connections. Figure 4.1 shows a photo of some of the common elements UCA needs at its public safety radio sites.

Figure 4.1 Most UCA Radio Sites Contain Common Elements. Typically, a radio site has a tower, a building to house equipment, and some type of data connection. This site on Lewis Peak uses microwave dishes for its data connections.



Source: Utah Communication Authority

Radio tower sites typically consist of a tower, a building, and a backup generator.

Statute Requires UCA to Be Cost Effective But Other Provisions May Limit Its Ability to Do So

Statute requires UCA to build infrastructure in a way that is cost effective and avoids duplicating existing facilities.¹⁹ UCA is specifically required in law to coordinate with public and private entities to evaluate the benefits and costs of utilizing existing facilities, equipment, and services of both public and private providers. Statute

¹⁹ *Utah Code* 63H-7a-404(2)

also allows UCA to enter into agreements with private entities to provide “...public safety communications network services.”

However, statute also restricts UCA from selling *capacity* on its communications network to public and private entities not involved with public safety. *Network capacity*, as defined in statute, includes not only data connections but also facilities, real property, and equipment necessary for the operation of the network.²⁰ In other words, the law limits UCA’s ability to work with public and private partners by prohibiting UCA from selling and trading things like radio tower space, building space, and electricity. This restricts UCA’s ability to enter into efficient partnerships and avoid duplicating existing resources. We found instances where the limits on UCA’s ability to partner with private entities may lead to higher costs for taxpayers and the construction of duplicate radio site elements. These instances are detailed in the next section.

Under Current Statute, Historical UCA Partnerships With Private Entities Will Likely Have to End

UCA has been able to avoid building infrastructure and reduce its costs by partnering with private entities for several decades. However, with the 2019 statute changes, these efficient and mutually beneficial arrangements will likely have to end.²¹ The following list includes a sample of such partnerships that have benefitted both UCA and private telecoms.

Beehive Broadband at Promontory Site. UCA operates a radio site near Promontory Point in the northern part of the Great Salt Lake but needed additional tower space. Beehive Broadband wanted a site there and offered excess space on its new tower in exchange for electricity from UCA and access to land leased by UCA from the United States Forest Service. UCA reports that the space it was given on the Beehive Broadband tower is worth more than the cost of the power used by Beehive so tax dollars are likely being saved by the arrangement. Similarly, Beehive asserts that this partnership has worked well for both parties and has reduced its costs. The agreement

UCA is currently prohibited from selling network capacity to any private entity not involved with public safety.

UCA has been able to avoid building infrastructure and reduce its costs by partnering with private entities.

²⁰ *Utah Code* 63H-7a-202(1)(h) and (3); *Utah Code* 63H-7a-103(10)(a)

²¹ UCA confirmed it is in the process of evaluating existing contracts and agreements in light of recent legislation.

Dominion Energy and UCA have shared infrastructure as part of a partnership that has existed since at least 1988.

also allowed UCA to maximize use of private infrastructure instead of building a new tower.

Dominion Energy at Multiple Sites. It appears that UCA provides a small number of data connections as well as tower and building space to Dominion Energy in exchange for tower and building space on Dominion Energy property. For example, UCA reports that its presence on Dominion’s Ensign Peak site is worth far more than the value of the data connections, tower, and building space UCA provides. This exchange has likely generated significant savings for the state. This relationship has existed since at least 1988.

Garkane Energy Cooperative at Barney Top Site. UCA provides space on its tower to Garkane at this Garfield County site in exchange for a partitioned area in Garkane’s adjacent building. UCA believes this arrangement has been equally beneficial to both parties. Likewise, Garkane believes the agreement has worked well for them and plan to add additional equipment to the site in the future.

Campbell Scientific at Logan Peak Site. UCA leases building and tower space to Campbell Scientific for equipment that measures weather conditions on Logan Peak. Campbell Scientific pays UCA an annual \$600 fee for the space. UCA reports that they use the weather information when coordinating Logan Peak site maintenance. According to Campbell Scientific, the Utah Avalanche Center also uses the weather data to forecast avalanche danger.

UCA leases tower space to multiple private entities including Campbell Scientific, Strata Networks, Rise Broadband, and Utah Broadband.

Strata Networks at Grizzly Ridge Site. Strata leases UCA tower space at Grizzly Ridge on the border of Uintah and Daggett Counties. UCA does not receive anything besides the lease payment. According to Strata, it will be difficult for them to construct a new tower due to United States Forest Service restrictions on land use. However, Strata may be able to lease space from another tower owner on Grizzly Ridge.

Rise Broadband and Utah Broadband at Davis County Landfill Site. These two internet service providers pay UCA money to place their equipment on UCA’s tower at the Davis County landfill in Layton. UCA had unused space on its tower that is located in an urban environment with, reportedly, limited alternative sites for radio towers. The telecoms gain valuable tower space and UCA is able to sell excess space on its tower. A representative from Utah Broadband told auditors the agreement with UCA was an equitable relationship

and they would need to build multiple new sites if they were forced to leave the landfill site.

These agreements between UCA and private entities either enable UCA to save money on infrastructure or more fully use existing infrastructure, whether that of UCA or its partners. The characteristics of radio tower sites and UCA's sites specifically encourages these agreements.

Mutually Beneficial Partnerships Stem from Site Constraints and Cost Advantages

The previously mentioned partnerships between UCA and private entities enable UCA to save money on infrastructure and prevents the building of additional structures on radio tower sites. The characteristics of radio tower sites and UCA's costs relative to telecoms encourages these agreements.

UCA and Telecoms Have Cost Advantages for Different Parts of Radio Tower Sites. UCA breaks its bid requests into two parts: 1) site components like the tower and building and 2) data connection costs. Based on bids received for new radio tower sites, and auditor estimates for UCA site maintenance costs, it appears:

- UCA can build and maintain the site components for a much lower cost than leasing them from telecoms.
- Telecoms may be able to provide data connections at a lower cost than UCA can build and maintain microwave at a site.

On the proposed Horn Mountain and Hanksville sites, a private telecom company bid \$2,460 per month for building and tower space in addition to a \$5,200 up front, one-time cost. We estimate that UCA can build and maintain a site for approximately \$886 a month, including maintenance costs, which is about a third of the monthly component of the private telecom bid. Over an estimated 25-year useful site life, UCA may save taxpayers approximately \$377,000²² by building this site itself. UCA is also receiving very few bids for tower and building space, forcing UCA to build their own sites in many

²² This is based on actual bids and estimated costs for UCA to build and maintain a site.

The characteristics of radio tower sites and UCA's costs relative to telecoms encourages partnerships.

It appears UCA can generally build sites at a significantly lower cost than leasing space from a private entity.

instances. Of the 27 site infrastructure projects put out for bid this year, UCA only received bids for 3 projects.

For data connections, however, there are some instances where telecoms can provide fiber optic data connections for less than UCA can build microwave dish connections. Over 20 years, it costs UCA approximately \$92,000 to build and maintain a large microwave connection at a site. For the same time period, vendors have bid \$40,000, \$65,000, \$89,000, and \$142,000 for a fiber connection at different sites.²³ UCA's building cost advantage and telecoms' ability to provide fiber more affordably than UCA can use microwave could lead to opportunities for UCA and vendors to exchange goods and services, if allowed by statute.

UCA Has Excess Capacity at Its Sites. UCA appears to build its radio tower sites according to certain technical requirements. These requirements generally involve installing a tower that is as tall as possible to produce the best radio coverage.²⁴ This leads to UCA building towers with a certain height and amount of space for mounting equipment but only using a portion of available space. The unused space at UCA sites does not appear to result from overbuilding but from building cost efficient sites that meet UCA's technical needs. Because of its excess capacity, UCA may have space at its current sites and any future sites that it can share as part of a partnership with telecoms and governmental entities. Surrounding states report they have space to lease on their towers for similar reasons.

Constraints on Site Construction Encourage Partnerships on New and Existing Sites. UCA currently owns or leases 221 sites around the state. New statutory restrictions mean this extensive inventory of radio tower sites can no longer be used by most private entities. However, UCA sites may be the most sensible option on which private entities can locate their equipment due to federal government restrictions.

²³ Fiber costs can vary dramatically based on individual site characteristics and required construction. The cost for using fiber is much higher if fiber is not already installed all the way to the proposed UCA site.

²⁴ Taller towers generally lead to better radio coverage. UCA reports that it needs a combination of vertical and horizontal separation of radio equipment on towers to reduce interference. Other equipment that operates on sufficiently different radio frequencies, like cell phone equipment, does not interfere with UCA equipment.

Due to technical considerations, UCA may have unused space on its radio towers.

Federal restrictions encourage partnerships between parties interested in using radio towers.

The United States Forest Service, on whose land UCA has built sites, requires radio tower sites on its land be designed, when practical, to accommodate multiple users in order to use limited land more efficiently. UCA reports that the Forest Service, prior to 2001, requested that UCA allow telecoms to lease space at UCA's tower on Grizzly Ridge. New radio tower sites on previously unused federal lands can require extensive environmental studies before they can be built, studies that, on existing UCA federal-land sites, have already been completed. These federal regulations make it advantageous for UCA and telecoms to partner on UCA's existing sites.

Modifying Statutory Restrictions Could Lead to More Public/Private Partnerships

In light of the 2019 law change expressly forbidding UCA from selling *network capacity* in certain circumstances, UCA has begun to evaluate its existing partnerships, like those described previously, to determine whether they are consistent with statute. This new approach may lead to an increase in cost to taxpayers and construction of duplicate radio sites that may not have been necessary.

UDOT Is Able to Partner with Private Companies on Infrastructure Projects. Statute currently limits UCA's ability to work with telecoms by restricting UCA from sharing costs or trading goods and services with telecoms. In contrast, the Utah Department of Transportation (UDOT) is able to partner with telecoms on fiber optic projects and services. During the audit, telecoms commented on the strength of their partnership with UDOT and how mutually beneficial it has been. These partnerships appear to hinge on UDOT's transparency in relation to projects and its ability to charge telecoms money or in-kind payment for access to UDOT projects. UCA and stakeholders both report that they want to work together similar to the way telecoms have worked with UDOT.

Utah Code 72-7-108 allows UDOT to sell highway right-of-way access to telecoms for installing fiber optic cable in exchange for compensation in the form of money or in-kind payment. Statute requires UDOT be compensated for access to highway right-of-way.²⁵ The compensation required must be:

- Fair and reasonable

²⁵ *Utah Code 72-7-108(3)(b)*

The termination of existing partnerships could lead to an increase in costs to taxpayers and the duplication of radio infrastructure.

UDOT can freely enter into partnerships similar to UCA's current, mutually beneficial partnerships.

- Competitively neutral
- Nondiscriminatory
- Open to public inspection
- Established to promote access by multiple telecommunication facility providers

The in-kind payment can take the form of providing fiber optic internet connectivity to UDOT traffic lights, traffic signs, and maintenance sheds. UDOT tracks the value of services received from each telecom and compares it to money owed UDOT for right-of-way access for their buried fiber.

Western States and Alberta, Canada, Which Have Similar Radio Systems, Partner with Telecoms. Wyoming, Washington, Oregon, Colorado, Nevada, and Alberta, Canada,²⁶ all have radio systems similar to UCA and all allow telecom companies on their infrastructure. Alberta was included because UCA representatives visited Alberta as part of the procurement process for the statewide upgrade for the 800 MHz radio system. Colorado²⁷ does not restrict local jurisdictions from leasing space to private entities. One of the members of Colorado's radio system board of directors stated his county has partnered with other entities on construction costs and leased space to private entities. Oregon reports they have formal policies that allow telecoms on its towers and have adopted a formal rate schedule for leases. A representative from Oregon also stated that they have entered into mutually beneficial agreements with telecoms to build radio tower sites.

All surrounding states with similar radio systems allow partnerships between agencies running their radio networks and telecoms.

²⁶ UCA visited Alberta because the province was the reference for one of the vendors bidding for the contract because it has a radio system that is similar to UCA's.

²⁷ Infrastructure for Colorado's public safety radio system, the Consolidated Communications Network of Colorado, is owned by the state and participating jurisdictions.

The Nevada Department of Transportation (NDOT) partners with other agencies to operate Nevada’s statewide radio system and works closely with telecoms. Nevada adopted statute very similar to the statute governing UDOT’s partnerships with telecoms. However, Nevada’s Legislature decided to extend the statute’s application to apply to radio infrastructure. NDOT’s partnerships with telecoms on radio tower sites is governed by the same statute that governs NDOT’s partnerships with telecoms on highway right-of-way projects.

NDOT operates Nevada’s radio towers and enters into partnerships with telecoms under statute fashioned after the statute governing UDOT.

A Change in Statute Could Allow UCA Partnerships Going Forward. In order to both preserve current public/private partnerships and enable partnerships going forward, the Legislature should consider modifying statute to allow UCA to work with private entities similar to UDOT and neighboring states’ practices. This could allow UCA to efficiently operate a statewide public safety radio network and work closely with private partners. It would also ensure UCA doesn’t compete with private providers and enters into agreements in a fair and transparent manner.

UCA Is Appropriately Procuring New Radio Tower Sites, but Minor Issues Remain

There have been concerns with UCA’s previous procurement process for new radio tower sites. UCA used to reach out to individual tower owners and telecoms instead of using a formal procurement process that solicited bids from many vendors. As UCA has worked to plan and build new sites, they have adopted a new project bidding process that appears to be consistent with Utah procurement code. We believe this bid process improves upon UCA’s former procurement process but that certain elements could be adjusted.

UCA’s new bid process appears to be an improvement on previous practices and appears to be consistent with Utah procurement code.

Since the years leading up to the 2002 Salt Lake Winter Olympics, UCA has worked to build out an interconnected 800 MHz radio network²⁸ throughout Utah. In 2018, UCA announced plans to build 25 new radio towers in areas of the state that lack 800 MHz radio

²⁸ 800 MHz is the frequency used by UCA’s trunked radio network. A trunked radio network is one that manages limited radio frequencies. The system helps share capacity among a large group of users. Non-trunked systems require users to manually change channels on their radios.

coverage. These new sites are concentrated in central and southeastern Utah.

UCA Has Not Systematically Worked with Private Infrastructure Providers Despite Statutory Requirements

Statute gives UCA the ability to design, build, and maintain infrastructure for its public safety radio network. As part of its infrastructure development process, law also requires UCA to coordinate with public and private parties to evaluate the costs of using existing facilities and to avoid duplicating existing facilities.²⁹ We found that, prior to 2019, UCA did not systematically coordinate with all public and private parties as well as it could have.

That is not to say that UCA has not partnered with public and private entities. Existing lease agreements show UCA has partnered with many public and private entities in the past; this chapter already described such partnerships. Our concern is that UCA used to reach out to individual tower owners and telecoms instead of using a formal procurement process that solicited bids from many vendors. By not consistently reaching out to a wide range of vendors, UCA may have missed opportunities for cost savings on past projects. The next section discusses recent changes to UCA's procurement policies that appear to have addressed these shortcomings.

UCA Developed a New Process That Requires Bids for Radio Tower Projects

The UCA Board unanimously approved a policy in March 2019 that requires UCA to solicit bids for all projects for new radio tower sites, data connections, and site upgrades. Bids are then compared against UCA's internal costs for building sites and data connections. This new policy appears to improve the way UCA coordinates with public and private entities as required by law.

Compared to UCA's previous method of selectively contacting tower owners and telecoms, UCA's new procurement policy fosters greater competition and fairness. The new, formal bid process leads to more vendors being contacted for bids and tower availability. This increases the likelihood that UCA can identify a telecom's existing site and possibly lease space at that site. Leasing space at existing sites is

Prior to 2019, UCA did not systematically coordinate with all public and private parties as well as it could have.

UCA may have missed opportunities for cost savings on projects prior to 2019.

UCA's new procurement policy appears to foster greater competition and fairness.

²⁹ *Utah Code* 63H-7a-202 and *Utah Code* 63H-7a-404

consistent with the previously mentioned statutory requirements. The new bid process may also lower the cost of building new sites and data connections if vendors can perform the work at a lower cost than UCA. Vendors have underbid UCA's internal costs for data connections at several new UCA sites.

UCA Can Improve the Way It Compares Internal Costs to Bids

Although it seems clear UCA's new bid process is superior to past practices, we feel some improvements can still be made to the way bids are compared to internal UCA costs. Telecoms expressed concerns about the absence of certain internal UCA costs in these calculations.

As part of the new bid process, UCA performs a net present value analysis that considers costs over the lifetime of a radio site.³⁰ The results of the analysis determine whether UCA or a vendor is the lower cost option for building and maintaining a radio tower site with a data connection. UCA is incorporating incomplete information into its analysis; however, this does not appear to have affected the decision to build or contract for sites and data connections.

UCA lacks complete information in its bid analysis but this does not appear to have impacted decisions.

Deficiencies in the cost analysis include:

- Estimated life of equipment appears too low. UCA assumes a useful life of site infrastructure of 20 years even though, according to UCA, its radio tower sites have historically lasted at least 25 years. Using a shorter timeline makes total monthly payments to vendors appear less for the life of a site.
- UCA's internal cost of site maintenance is not included. For the site component of a project, UCA did not include general site maintenance expenses in its internal costs. These costs are included as part of a vendor's bid.
- UCA's internal microwave maintenance cost is not included. If UCA installs its own microwaves for the data connection, they must pay the cost to maintain the microwaves and associated

³⁰ Total cost is measured in current dollars. Net present value analysis is premised on the fact that money in the future is worth less than money today and must be discounted. This type of analysis is helpful in determining the current value of future cash payments.

Incorporating maintenance costs into UCA’s analysis will make comparisons with vendor costs fairer.

equipment. Maintenance costs for fiber optic connections are included as part of a vendor’s bid.

- Net present value calculations are not based on the projected pattern of cash flows. To simplify its analysis, UCA assumed an annual payment to vendors at the end of each year instead of monthly payments. Using monthly payments increases the calculated cost of contracting with a vendor.

Incorporating these improvements will yield more accurate analyses and address stakeholder concerns. UCA should refine its process for comparing bids to internal costs for building radio sites. In its project cost comparisons, UCA should include estimates for internal maintenance costs, a more accurate useful life of equipment, and a methodology that accurately reflects future cash flows.

Certain Concerns About UCA’s Radio Division Appear to Be Largely Unfounded

Stakeholders made multiple complaints to us and to the Legislature about UCA operations. One concern was that UCA had built costly radio infrastructure in areas with existing private infrastructure.

Another concern was that UCA was using outdated technology in its radio network infrastructure. Based on statutory language, conversations with other states, and records related to specific projects, we found these concerns to be largely unfounded.

UCA Does Not Appear to Have Deliberately Overbuilt Its Infrastructure

Private stakeholders have expressed concerns that UCA is overbuilding its network. One concern is that UCA has deliberately overbuilt its infrastructure in an effort to sell excess capacity and generate additional revenue.³¹ The idea is that UCA, with government resources, will unfairly take business from private companies. Telecom leaders reported that this fear is based on statements made to them by past UCA leadership who expressed an intent to do this. However, in our review of UCA practices, it appears UCA has built sites according

³¹ As mentioned earlier, UCA’s public safety communications network is defined in law as “...real property, improvements and equipment...” associated with UCA’s radio infrastructure. See *Utah Code* 63H-7a-103(10)(a).

Stakeholders made multiple complaints about UCA operations during the 2019 General Legislative Session.

to technical requirements, not to sell excess capacity. We asked rural telecom leaders for examples where UCA has inappropriately competed in the private market. They were unable to provide specific examples.

There is a related concern that UCA is opting to build its own radio sites and network connections instead of using existing private infrastructure and facilities. However, UCA appears to do so when driven by things like clear cost savings or a desire for redundancy as permitted by law. We asked rural telecom leaders for examples where UCA inappropriately built new infrastructure instead of using existing infrastructure. One major example was provided but we do not believe that UCA acted inappropriately in that case for reasons detailed in the next section.

One Complaint to the Legislature Was that UCA Overbuilt A Particular Section of Its Network at Significant Cost. A telecom leader testified to the Legislature that UCA may have wasted a significant amount of tax dollars on a string of network connections from Carbon County to San Juan County. Based on cost estimates, the telecom leader suggested that it cost UCA up to \$1,000,000 to replace microwaves on five sites. In fact, it cost UCA \$381,294 to replace microwave equipment at seven sites.

It was also suggested that leasing private fiber optic connections would have been less expensive for UCA than replacing microwave equipment. UCA likely could not have relied solely on fiber as an alternative to replacing their microwaves due to the lack of redundant fiber optic connections at certain sites. Comparing the cost of fiber to UCA's cost to replace microwave equipment is therefore not a valid comparison because UCA likely needed both and requested bids on this basis. In addition, UCA needed to maintain these microwave connections to fulfill a contract with the Utah Department of Technology Services (DTS).

UCA can build its own infrastructure if it is cost effective and UCA has evaluated opportunities to use existing infrastructure.

UCA's replacement microwave connections between Ford Ridge and Abajo Peak did not cost as much as alleged.

Idaho, Wyoming, Colorado, Arizona, Nevada, Washington, and Oregon all use microwave for networking within their radio systems.

UCA uses fiber optic connections as a redundancy to microwave for certain parts of the network.

UCA Uses Technology Similar to That of Other States for Radio Network Infrastructure

Stakeholders also criticized UCA for using microwave technology for the radio network's data connections. The claim was that microwaves are old technology that will not satisfy future bandwidth needs on the radio network. Based on conversations with other states and UCA's technical needs, these concerns do not appear to be valid.

Microwaves are frequently used by other states for their public safety radio systems. Idaho, Wyoming, Colorado, Arizona, Nevada, Washington, and Oregon all use microwave for networking within their radio systems. Also, DTS, the Utah Education and Telehealth Network, and private telecoms report that they rely on microwave connections in certain instances. UCA reports its bandwidth needs may decrease after the 800 MHz radio network upgrade is complete, meaning existing microwave may be able to transmit enough data for the radio network.

UCA currently uses fiber optic connections as a redundancy to microwave for certain parts of the radio network. In addition, UCA has formally adopted a policy that encourages the use of both microwaves and fiber optic connections when appropriate.

Recommendations

1. We recommend that the Legislature consider modifying statute to allow the Utah Communications Authority to work with private entities similar to what the Utah Department of Transportation and neighboring states do.
2. We recommend that the Utah Communications Authority refine its process for comparing bids to internal costs for building radio sites by including estimates for internal maintenance costs, a more accurate useful life of equipment, and a methodology that accurately reflects future cash flows.

Chapter V

UCA Has Not Fully Facilitated Unified Communication on Public Safety Radios

Public safety communication in Utah occurs over multiple radio networks. Interoperability is the ability of public safety agencies to work together and communicate with one another across different radio networks. A lack of interoperability across networks can lead to problems in public safety coordination and communication. We found:

- The Utah Communications Authority (UCA) has not done enough to fulfill statutory requirements to facilitate interoperability between different radio systems in Utah as well as neighboring states.
- Improved communication between UCA and stakeholders could encourage radio network adoption. More widespread adoption of UCA's network would likely improve interoperability.

UCA's Interoperability Division Has Not Coordinated Solutions to Existing Interoperability Problems

UCA's Interoperability Division (division) could do more to coordinate communications between different radio networks. As it stands, some public safety personnel in Utah have had difficulty communicating with one another, which limits how well they can respond to public safety needs. UCA has recently developed plans to fulfill its statutory responsibility and improve interoperability.

The Division is Required to Coordinate Statewide Radio Interoperability

Radio interoperability is crucial because multiple jurisdictions are routinely called upon to assist one another and they need to be able to communicate while doing so. Interoperability of radio systems allows this coordination of public safety resources. According to the United States Department of Homeland Security, the inability for emergency

Interoperability is the ability of public safety agencies to communicate across different radio networks.

Public safety personnel have had difficulties communicating with one another, limiting how well they can respond to public safety needs.

Public safety agencies in Utah primarily use three types of radios: UCA's 800 MHz, conventional VHF, or proprietary VHF.

The division's central role is to coordinate resources and facilitate interoperability solutions.

responders to communicate with each other compromises their ability to perform mission-critical duties.

Public safety agencies in Utah primarily use three types of radios with their corresponding networks:

- UCA's 800 MHz network
- Conventional VHF radios
- A proprietary VHF system operated by Emery, San Juan, and Carbon Counties.

The division is responsible for coordinating interoperability across these different radio networks. The statewide interoperability coordinator is required to:

- Promote wireless technology information and interoperability among local, state, federal, and other agencies
- Provide a mechanism for coordinating and resolving wireless communication issues among local, state, federal, and other agencies
- Improve data and information sharing and coordination of multijurisdictional responses
- Consider opportunities to consolidate or improve interoperability of infrastructures and technologies³²

The division is also required to assess training needs for the public safety communications network and make recommendations to UCA's executive director related to this training.³³ In addition, the division must prepare an annual plan for approval by the executive director and board and provide information that is incorporated into UCA's strategic plan.

In combination, these requirements illustrate the division's central role in coordinating resources at all levels of government and addressing interoperability problems. Statute sets the division as the primary point of contact for public safety entities who experience such problems.

³² *Utah Code* 63H-7a-503

³³ *Utah Code* 63H-7a-502(1)(a)(iv) and 63H-7a-502(1)(b)(iv)

Interoperability Problems Negatively Impact Public Safety in Utah

There are imperfect solutions for 800 MHz radio users to speak with VHF users, but they are not implemented universally. The following are some problems that radio users around the state described during the course of the audit. According to statute, UCA is responsible for coordinating solutions to such problems but is not responsible for directly implementing solutions.

- A high speed chase occurred in Emery County. Utah Highway Patrol (UHP) troopers, who use 800 MHz radios, could not talk with the Emery County Sheriff's Office, who use proprietary VHF radios, during the pursuit. The sheriff's office wanted to disable the speeding vehicle before it entered a populated area but could not communicate its plan to UHP troopers. Sheriff's deputies ultimately disabled the vehicle without notifying UHP troopers, increasing the danger to public safety officers involved in the chase. According to UCA, this inability to talk on the radio resulted from a lack of training for dispatchers and public safety radio users.
- During the execution of a federal search warrant, the Uintah County Sheriff's Office was unable to create a connection between conventional VHF radios and another type of radio. This made the operation more dangerous and more difficult to accomplish.
- Carbon County implemented a radio connection at the Price public safety answering point so that 800 MHz radio users, proprietary VHF radio users, and VHF radio users could communicate directly. It worked, but had the side effect of introducing an audio delay on the 800 MHz and proprietary VHF radios. As a result, the patch was temporarily abandoned. San Juan County had a similar problem and is working with Carbon County to eliminate the audio delay. The audio delay makes it difficult for radio users to communicate effectively with each other.
- A legislator told the Law Enforcement and Criminal Justice Interim Committee in June 2019 that he had to talk over cell phones with Idaho in his role as a UHP trooper. UCA indicated future radio upgrades will allow UCA to create a

There are imperfect solutions for 800 MHz radio users to speak with VHF users, but they are not implemented universally, and problems remain.

Interoperability issues increased the danger to public safety officers during a high-speed chase in Emery County.

gateway to communicate with Idaho radio users but did not comment on current interoperability.

At least one of these problems stems from lack of training on the part of dispatch centers and police officers. Others appear to be caused by lack of formal coordination between jurisdictions and lack of coordination on technical solutions. Many interoperability problems center on the interaction of the state's three radio systems that have coexisted since at least 2017.

There Is Limited Evidence That UCA Is Facilitating Solutions to Day-to-Day Interoperability Problems

UCA's statutory role is to bring together stakeholders and resources to solve interoperability problems. While UCA is not statutorily responsible for directly implementing solutions, it is responsible for facilitating a process that leads to solutions.

It appears that UCA and its Interoperability Division have fulfilled some responsibilities from a strategic, long term planning perspective. For example, UCA reports it helped update Utah's Statewide Communication Interoperability Plan (SCIP), which is a strategic planning tool for interoperability, and worked with AT&T on FirstNet implementation.³⁴ However, there is little evidence UCA has fulfilled its role to help solve public-safety-agency level interoperability problems. Local public safety agencies do not appear to reach out to the Interoperability Division as the primary point of contact for coordinating solutions as statute suggests they should. It is unclear whether these agencies are aware that this is the division's role.

The previously mentioned examples show that problems persist for radio users in Utah when they attempt to communicate with users on a different radio network during the course of their regular duties. An audit commissioned by UCA in 2016 stated that the division has focused almost exclusively on strategic goals like FirstNet implementation instead of other interoperability issues, likely due to inadequate staffing.

It appears UCA has fulfilled some interoperability responsibilities from a strategic, long term planning perspective.

The division has done little to facilitate cross border interoperability with surrounding states.

³⁴ FirstNet is an independent authority within the U.S. Department of Commerce tasked with the establishment of a nationwide interoperable public safety broadband cellular network. AT&T is currently working to build this network.

The division has only recently begun facilitating training for stakeholders on radio usage and interoperability issues. The division has also done little to facilitate cross border interoperability with surrounding states. For example, the interoperability coordinator has been in communication with counterparts from Colorado and Wyoming but has not been in contact with counterparts from Idaho, Nevada, or Arizona. The preliminary communication with Colorado and Wyoming has not led to formal interoperability procedures.

UCA Has a Plan to Fulfill Interoperability Responsibilities

UCA acknowledges that more can be done in facilitating interoperability for radio users. The UCA Board recently approved an interoperability strategic plan that provides a roadmap for fulfilling the division's statutory responsibilities. For example, the plan calls for interoperability working groups with surrounding states and a schedule for local training exercises to ensure interoperability capabilities.

Beginning in July 2017, the Legislature requires UCA to create an annual strategic plan, which includes a section for the Interoperability Division. The division drafted a strategic plan in December 2018. This was only adopted recently in November 2019. UCA should fulfill its statutorily required role to coordinate interoperability by implementing the recommendations of the adopted strategic plan.

Improved Communication with Stakeholders Could Encourage Radio Adoption

The best interoperability solution is for all public safety agencies to be on the same radio network. Using a single network reduces interoperability problems and eliminates the need for users to carry multiple radios or install temporary hardware solutions. However, UCA has not adequately provided information to counties considering adopting UCA's statewide radio network. Improving communication to counties could make adoption more likely or at least provide counties the information they need to better evaluate 800 MHz radio adoption.

The UCA Board adopted a strategic plan for interoperability.

The best solution for interoperability is for all public safety agencies to be on the same radio network.

UCA Should Determine Which Local Agencies Can Use the 800 MHz Network

Rural counties report having many public services on VHF radios including agencies related to animal control, public works, and roads. Statute limits the UCA radio network at the local level to only public safety agencies.³⁵ UCA does not have a clear policy or rule on which services do and do not qualify as “public safety.”

Determining which agencies can use UCA’s statewide radio network is important for counties considering joining the system. Counties may face interoperability issues if not all of their local agencies are able to use 800 MHz radios. For counties that maintain their own VHF systems, keeping some agencies on VHF requires the county to continue financially supporting their systems. This continued cost would likely be a factor into the choice of whether they join UCA’s radio network.

We spoke with all surrounding states and the province of Alberta, Canada,³⁶ about how they operate their radio networks. Alberta was included because UCA representatives visited Alberta as part of the procurement process for the statewide upgrade for the 800 MHz radio system. Alberta, Colorado, and Wyoming (all jurisdictions with radio systems similar to Utah) have policies describing which users can be on their public safety radio networks. Colorado and Wyoming allow a large range of agencies and services on their systems to increase interoperability. Regardless of which services UCA allows on the network, it should create *Administrative Rule* that is both consistent with law and uniformly applied throughout the state.³⁷

For counties that maintain their own VHF systems, keeping some agencies on VHF requires the county to continue financially supporting their systems.

Alberta, Wyoming, and Colorado have policies describing which users can be on their public safety radio networks.

³⁵ UCA’s VHF system is also restricted to only public safety agencies. However, UCA reports that, due to the underpinning technology, it cannot identify which users are using its VHF, nor can it prevent users from accessing it.

³⁶ Alberta was included because UCA representatives visited Alberta during the procurement process for the P25 upgrade.

³⁷ The UCA Board is required by *Utah Code* 63H-7a-204(12) to “...provide for the management and administration of the public safety communications network by rule made in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act...”

UCA Did Not Create a Comprehensive Plan That Includes Coverage Maps

UCA did not create a statutorily required comprehensive plan that includes radio coverage maps. Communicating radio coverage improvements would be beneficial to counties considering joining the state's radio network.

Statute required UCA to develop a comprehensive plan prior to January 15, 2018, that included anticipated coverage maps.³⁸ Due to confusion by UCA on what type of plan met this requirement, UCA reportedly did not create a comprehensive plan. The lack of a comprehensive plan with coverage maps eliminated one avenue that rural counties could have used to learn about future radio coverage.

Statute relating to the comprehensive plan includes explicit requirements not mentioned in the section of statute that requires UCA to create a strategic plan. If the Legislature still wants UCA to create a comprehensive plan, the Legislature should consider resetting the due date in statute.

UCA Should Better Communicate Which Radios Are Compatible with Its Network

UCA should better inform stakeholders which radios will work on UCA's current and future, upgraded system. In multiple instances, stakeholders have expressed confusion about the radios they should purchase in order to use UCA's 800 MHz system. This concern was previously brought to UCA's attention in 2017 at a UCA symposium. The recent Public Safety Answering Point Advisory Committee also recently featured faced questions from stakeholders about compatible radios. Several jurisdictions contemplating adopting 800 MHz radios expressed uncertainty on multiple occasions about which radios would work on UCA's network.

UCA recently began sending quarterly newsletters, one of which included information about radios that will be compatible with the future, upgraded system. However, there has been no information on radios that would also work on the current radio network. Also, information on compatible radios is not found on UCA's website.

The lack of a comprehensive plan with coverage maps eliminated one avenue that rural counties could have used to learn about future radio coverage.

Stakeholders have expressed confusion about the radios they should purchase in order to use UCA's 800 MHz system.

³⁸ *Utah Code* 63H-6a-404(3) and 63H-7a-404(4)

Surrounding states with similar radio systems and Alberta, Canada publicly share details about radios that work with their systems. Colorado, Wyoming, Nevada, and Alberta all share exhaustive lists of compatible radios with their stakeholders to ensure they know what radios they can purchase to use their respective radio networks. UCA should share information with stakeholders about compatible radios that currently work on the 800 MHz network and radios that will likely work after the network upgrade.³⁹

Statute Leaves the Door Open for Adopting New User Fees

Prior to July 1, 2017, UCA's largest funding source was radio user fees. Public safety agencies had to pay UCA up to \$28 per month for each radio they used on the 800 MHz network.⁴⁰ The Legislature eliminated all user fees adopted prior to July 1, 2017, through the passage of SB198 during the 2017 General Legislative Session. The Legislature replaced these user fees with a telephone bill surcharge of 18 cents per month starting in July 2017 and increasing to 52 cents per month in January 2018. Statute, however, does not explicitly prevent UCA from implementing new user fees in the future.

UCA officials have stated that they do not have plans to adopt new user fees for state and local agencies.⁴¹ However, counties expressed concern that UCA could bring back user fees at a later date. Alberta, Canada, eliminated recurring radio user fees to encourage stakeholders to join the system and increase interoperability. The Legislature should consider clarifying whether UCA can charge new radio user fees.

Current statute does not prevent UCA from implementing new user fees in the future.

Counties expressed concerns that UCA would bring back user fees at a later date.

³⁹ Because the P25 upgrade has not been completed, it may be difficult to definitively say which radios will work in the future. Handsets are typically tested on a system before they are deemed compatible.

⁴⁰ According to UCA, this amount varied by type of organization paying the user fee. For example, volunteer fire departments generally paid less than state government agencies.

⁴¹ UCA reports non-governmental agencies and federal agencies still pay user fees.

Recommendations

1. We recommend that the Utah Communications Authority, as directed by law, coordinate with stakeholders to develop solutions to interoperability problems.
2. We recommend that the Utah Communications Authority develop *Administrative Rule* to specify which local agencies can use the 800 MHz radio network.
3. We recommend that the Legislature determine whether the Utah Communications Authority should still be required to create a comprehensive plan for its Radio Division. If the Legislature wants to reaffirm the requirement, it should consider resetting the due date for the plan.
4. We recommend that the Utah Communications Authority communicate information on network compatible radios to stakeholders.
5. We recommend that the Legislature consider clarifying whether the Utah Communications Authority can adopt new radio user fees.



Chapter VI

UCA Board Is Generally Effective but Improvements Could Be Made

The Utah Communications Authority Board (UCA Board or board), as currently constituted in statute, has existed since mid-2017. We found that the board is generally providing good governance over UCA but that improvements can be made with regards to financial control policies and the sharing of board meeting information.

It was reported to us that the Legislature considered moving UCA to the executive branch during the 2019 General Legislative Session. We found that because the UCA Board is providing adequate oversight, there is no clear advantage to doing so. Nevertheless, UCA may benefit from better collaboration with the Department of Technology Services and the Department of Transportation.

UCA Board Compares Well to Standards, but Could Formalize Some Policies and Procedures

According to best practices for control and governance, the board is generally governing UCA effectively. However, we found that some improvements can be made. For example, the UCA Board should:

- Adopt a policy for financial controls that delineates the segregation of duties to ensure that proper financial controls will continue in the event of staff turnover. No formal policy currently exists.
- Provide board meeting materials for attendees to improve transparency and enable more informed public comment.

The following sections discuss these recommendations further.

UCA Governance Compares Well to Best Practices and Control Frameworks

Our conclusion that the UCA Board is providing effective governance is based on our analysis of board actions compared to frameworks for best practices and controls. For our assessment, we used a best practices checklist that was designed by our office in 2017

The UCA Board is generally governing UCA effectively.

We reviewed UCA Board actions against frameworks for internal control and governance.

for entities like UCA and other independent or quasi-governmental organizations.⁴² Those checklist items address the areas of:

- Roles of board and staff
- Internal controls
- Recruiting qualified personnel
- Tone at the top

In addition to that checklist, we relied on financial control and governance standards from the Utah Division of Finance.

With these standards and best practices as guides, we reviewed UCA’s policies and procedures, rules and bylaws, and internal financial control practices. With some exceptions, noted in the next paragraph, the UCA Board is generally governing the organization in an effective way. Figure 6.1 shows an overview of the results of our review.

Figure 6.1 UCA Governance Is Mostly Adequate Compared to Best Practice Measures. Improvements in internal controls policy will improve elements of UCA governance.

Roles of Board and Staff	Internal Controls	Recruiting Qualified Personnel	Tone at the Top
<i>Passed 15/15 measures</i>	<i>Passed 6/7 measures</i>	<i>Passed 3/3 measures</i>	<i>Passed 5/6 measures</i>
	UCA lacks formally adopted financial control policies.		UCA lacks an ethics hotline and a whistleblower policy.

Source: Auditor review of UCA governance and control practices. The checklist measures evaluated here came from our office’s report A Review of Best Practices for Internal Control of Limited Purpose Entities, Report No. 2017-05, Released June 2017. Three checklist items were not included because they did not apply to UCA.

UCA Satisfied 29 of the 31 items in the best practice checklist.

We believe the UCA board satisfies 29 of the 31 items from the best practice checklist. Specific recommendations to address deficiencies are discussed next.

⁴² *A Review of Best Practices for Internal Control of Limited Purpose Entities* (Report No. 2017-05, Released June 2017)

UCA Should Formally Adopt Policies and Procedures for Internal Financial Controls

As we reviewed financial controls, UCA provided an informal document that describes the organization's internal accounting and financial control practices. However, this document is incomplete and lacks detail. In practice, we found that UCA accounting staff fulfill clear roles and duties that appear to provide adequate controls over financial activities.

Because UCA lacks a formal policy spelling the segregation of duties, the UCA Board should adopt a policy outlining financial control policies and procedures. Also, to ensure that policies and procedures are complete, we recommend UCA conduct a full review of internal practices against the Utah Division of Finance standards for internal financial controls.

UCA Board Takes an Active Role in Board Meetings, Could Make Meeting Materials Available to Attendees

The UCA Board appears to lead out on major decisions in the organization. They have appointed senior staff members and board positions, establishing and approving policies, authorizing the use of UCA funds, setting expectations, and monitoring results. The board is known to table items at one meeting to give the members additional review time to gather information. We also observed that board meetings include regular reports from their audit committee, organized in 2017.

Notwithstanding the good practices we observed in UCA board meetings, multiple law enforcement and PSAP leaders around the state observed that board meeting materials are not readily available to meeting attendees. For those in attendance, it is therefore difficult to understand and follow discussions of budget items, policy changes, and other board business. This lack of ability to follow along could also hamper public comment portions of UCA board meetings.

The intent of Utah's Open and Public Meetings Act is for the state, its agencies, and its political subdivisions to take actions and deliberate openly. Similarly, Utah's Government Records Access and Management Act (GRAMA) encourages the right of access to information concerning the conduct of public business. UCA's mandate to productively work with public safety stakeholders would

The UCA Board should adopt a policy outlining financial control policies and procedures.

The UCA Board appears to lead out on major decisions in the organization.

The UCA Board should make board meeting materials available to its many attendees.

suggest that some method of showing meeting materials to the many regular meeting attendees would be beneficial. We therefore recommend that UCA provide board meeting materials to attendees to enhance public participation and transparency. This would address stakeholder complaints of insufficient information from UCA about plans, budgets, and other UCA Board decisions.

Moving UCA to the Executive Branch Is a Policy Decision, but We Identified No Clear Advantage

During the 2019 General Legislative Session, law enforcement personnel and PSAP stakeholders discussed the possibility of moving UCA into the Department of Public Safety (DPS) to improve UCA's oversight. Many of these individuals later acknowledged that UCA has made great strides to address stakeholder concerns that led to the idea of relocating UCA. Because the UCA Board is adequately governing the organization, we found no clear advantage in moving UCA.

To more fully explore the question of where UCA should exist within state government, we interviewed leadership of multiple state agencies including the Utah Department of Technology Services (DTS) and DPS. Historically, portions of what later became UCA started in DPS and later moved to DTS before the Legislature modified statute, creating UCA as an independent agency.

In 2016, a fraud was perpetrated by a UCA employee and the organization subsequently went through several core leadership changes. During the 2016 interim, the Legislature considered several policy options including moving UCA to the executive branch. At that time, the Legislature chose instead to restructure the UCA Board and retain its status as an independent state agency.

There appears to be limited redundancy in operations between UCA, DPS, and DTS; moving UCA would not necessarily increase efficiencies. For example, there may be some crossover in terms of network engineering capabilities at UCA and DTS, but this appears to be limited. DPS has extensive experience using public safety radio but does not have existing expertise in operating the radio network. Also, the fact that DPS operates PSAPs complicates moving UCA into DPS because UCA develops minimum standards for PSAPs and plays a critical role in providing funding and other support to PSAPs.

Though ultimately a policy decision, we found no clear advantage to moving UCA.

There is not a clear place to put UCA in the executive branch.

Moving UCA to either of these departments appears to have limited benefit and may introduce difficulties in performing UCA's statutory responsibilities.

UCA May Be Able to Lower Its Costs Through Better Coordination with State Agencies

Although we did not identify any clear advantage to moving UCA to the executive branch, UCA may benefit from closer collaboration with DTS and the Utah Department of Transportation (UDOT).

DTS leases data connections from private telecoms for state-agency use. These data connections cover large areas of the state. In addition, UDOT has worked with telecoms to build large sections of fiber optic infrastructure. In some instances, UCA may be able to connect its radio network to DTS or UDOT networks instead of constructing and maintaining microwave connections or contracting directly with private telecommunications companies.

Because of the variability and complexity of each UCA radio site and limitations on exactly where and how state fiber optic resources may be used, we recommend that UCA continue to investigate whether and how it can make better use of existing state data connections for its network needs.

Recommendations

1. We recommend that the Utah Communications Authority Board adopt a policy outlining financial control policies and procedures.
2. We recommend that the Utah Communications Authority conduct a full review of internal practices against the Utah Division of Finance standards for internal financial controls to ensure that policies and procedures are complete.
3. We recommend the Utah Communications Authority Board determine how to best provide board meeting materials to help meeting attendees better understand the decisions being made.

UCA should work with DTS and UDOT to identify opportunities to collaborate.

4. We recommend that the Utah Communications Authority explore ways to make better use of existing state network resources.

Agency Responses



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December 5, 2019

Kade R. Minchey, CIA, CFE
Auditor General
Office of the Legislature Auditor General
Rebecca Lockhart House Building, Suite W315
Salt Lake City, Utah 84114-5315

Re: Response to the Performance Audit of the Utah Communications Authority and 911 Operations, Report No. 2019-15

Dear Mr. Minchey:

Thank you for the opportunity to provide the Utah Communications Authority's ("UCA") response to your report number 2019-15, "A Performance Audit of the Utah Communications Authority and 911 Operations" (the "Report"). I want to commend you and your employees for the work and effort that was performed to create this Report. UCA is very appreciative of the review and suggestions that have been made both for UCA and for its stakeholders and partners.

The Utah Communications Authority maintains and expands the best public safety, emergency, radio communications network in America, assists state/county/local agencies in the provision of 911 services, and improves interoperability across Utah. As you found in the course of your audit, these are large and complex tasks that form the backbone of Utah's first responder network. UCA is proud of the services it provides and is pleased to support Utah's first responders.

As is noted in your Report, the current management of UCA, both its Governing Board and its Executive Management are relatively new. After successfully emerging from a well-publicized incident of employee fraud, UCA has set out to dramatically and drastically improve Utah's emergency communications. For example, the Utah Supreme Court recently approved the procurement process UCA employed to secure a new radio system, replacing its currently outdated system. This upgrade is now well underway. UCA has also announced a large expansion of its network to provide even greater coverage for its users. In addition, UCA, following the guidance of the Federal Communications Commission ("FCC") and the recommendations of national 911 organizations, is in the process of procuring an entirely new IP based 911 network which will allow for a faster, more reliable 911 response for Utah's citizens. All of these improvements are in the midst of dramatic legislative changes, including significant changes to UCA's funding. In short, UCA is committed to its statutory and ethical obligations. With this dedication in mind, we

wish to address some of the findings and conclusions of this audit and to commit UCA to the continued implementation of this Report's suggestions.

Chapter II of the Report focuses heavily on the transfer of 911 calls between PSAPs; this is something that UCA has also made a focus of its efforts as well. UCA agrees with your findings that, except in very limited circumstances, the transfer of a 911 call should be avoided. And, similar with your conclusions, UCA believes that consolidating PSAPs is not the only way to accomplish this objective. In Phase II of UCA's Strategic Plan it addresses a concept known as functional or virtual consolidation and espouses the idea that utilizing common phone systems, radio networks, and CAD connections, a PSAP could reduce transferred calls. Of course, the implementation of Next Generation 911 ("NG911"), the systemic upgrades of the 911 network that UCA is currently procuring, will permit the geospatial routing of calls which will reduce the number of cell phone calls that get misdirected to the wrong PSAP.

Your Report also recommends that "UCA Should Use the State 911 Account as Incentive to Improve the Statewide 911 System." We agree. The website, www.911.gov, maintained by the National Highway Traffic Safety Administration's Office of Emergency Medical Services states that "[t]he success and reliability of 911 will be greatly improved with the implementation of NG911, as it will enhance emergency number services to create a faster, more resilient system that allows voice, photos, videos and text messages to flow seamlessly from the public to the 911 network. NG911 will also improve PSAP ability to help manage call overload, natural disasters, and transferring of 911 calls and proper jurisdictional responses based on location tracking."

https://www.911.gov/issue_nextgeneration911.html. In other words, the implementation of an NG911 system is expected to address not only transfers, a problem focused on in your Report, but also a host of other issues and concerns facing PSAPs, which will be addressed by your office at a later date. As such, the focus of UCA's 911 Division has been to utilize the Unified Statewide 911 Emergency Service Account to provide a statewide upgrade to NG911. This upgrade will meet the goals of the majority of the Sections referenced in Figure 2.5 of the Report. Specifically, NG911 fulfills the requirements of Section 304(2)(a) of the Utah Communications Authority Act which are to enhance and maintain a 911 network that rapidly and efficiently delivers 911 services in Utah. Similarly, this upgrade will meet the requirements of Section 304(2)(b) – to promote "statewide public safety" and "interoperability" and to impact "the largest service territory," "densely populated area[s]" and "underserved areas;" Section 304(2)(c) – in accordance with UCA's Strategic Plan, and Section 102 to "provide administrative and financial support for statewide 911 emergency services."

However, as the Report notes, there is one section of the Utah Communications Authority Act, Utah Code Ann. §63H-7a-302(5)(a), which states that UCA's 911 Division "shall recommend to the executive director, for approval by the board, rules in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act, to: (a) administer the program funded by the Unified Statewide 911 Emergency Service restricted account created in Section 63H-7a-304, *including rules that establish the criteria, standards, technology, and equipment that a public safety answer point is required to adopt in order to qualify for goods or services that are funded from the restricted account.*" (emphasis added). It is this section that your Report relies upon for the conclusion that UCA is statutorily required to adopt rules which mandate PSAP compliance with certain standards as a precondition to receiving funds or equipment

purchased using funds from the Unified Statewide 911 Emergency Service restricted account.

Since receiving this suggestion, UCA has considered how it might comply with this suggestion without damaging the important and necessary upgrade to NG911. UCA agrees with your conclusion that it is in everybody's best interest to encourage the compliance with certain minimum standards and best practices, be they those previously adopted by UCA's Governing Board or others, including encouragement tied to compensation from the Unified Statewide 911 Emergency Service restricted account. However, UCA does not believe, nor do we believe you are suggesting, that such should come at the sacrifice of NG911. After all, if a PSAP is not meeting a standard, depriving it of the very tools meant to achieve a greater 911 service would be punitive and counterintuitive when considering the overall purpose for which such PSAP exists in the first place.

Accordingly, in an effort to balance what might otherwise be conflicting objectives, UCA intends to proceed with its plans to provide a statewide NG911 network and phone system to PSAPs without regard to compliance with standards while setting aside a certain amount of money from the Unified Statewide 911 Emergency Service restricted account to be divided amongst those PSAPs that meet certain standards which standards shall be established through collaboration with UCA's Advisory Committees and Governing Board. It is UCA's hope that by eliminating certain optional features of the NG911 solution, along with some new technology solutions recently proposed to UCA by its consultants, the NG911 solution can be procured in a cost-efficient manner that will still permit a decent amount of funds to be dedicated toward encouraging standards compliance as suggested in the Report.

In addition to achieving both the worthy goals of implementing NG911 and advancing certain minimum standards, the above plan will also assist UCA in the difficult task of both enforcing minimum standards while collaborating with PSAPs. The Report highlights the difficulty of this task in the representative example of the now amended minimum staffing standard. As noted, UCA, in compliance with the Utah Communications Act, adopted minimum standards and best practices in April of 2018. Prior to the adoption of these minimum standards and best practices, UCA held regional meetings with PSAPs to gain input on its strategic plan, including the minimum standards and best practices. After this document was drafted, UCA sought the input of its seven regional advisory committees and its operations advisory committee. The majority of these committees compiled comments, suggestions, and edits to these minimum standards which were all considered and discussed by UCA prior to the Governing Board's adoption of these minimum standards. In fact, at the Governing Board meeting where these standards were proposed and adopted, a representative of the Operations Advisory Committee referred to these standards as "well vetted and well placed." Acting upon these comments, UCA attempted to fulfill what it understood to be its ethical, if not statutory duty, to not only publish, but stand behind these minimum standards and best practices. In reality, the comments from the Operations Advisory Committee, though meant to be a representation of the collective, were misleading and UCA has since learned that the majority of PSAPs were staunchly opposed to this minimum staffing standard, not just a vocal minority. As noted, UCA has invested a significant effort over the past eighteen (18) months to exhibit to PSAPs a willingness to be a partner, not a dictator.

Notwithstanding, UCA does have some trepidation that the mandate to restrict funding that PSAPs have come to view as nearly automatic may be seen as dictatorial and overbearing. For this reason, UCA appreciates and welcomes the suggestion in the Report that the Legislature clarify the role(s) that UCA is expected to play when it comes to minimum standards, best practices, collaboration, and the Unified Statewide 911 Emergency Service restricted account. UCA also welcomes and appreciates the Reports comments about the necessity of PSAPs to understand and appreciate the role(s) that UCA has been asked to play and the delicate balance we are trying to maintain.

UCA also very much appreciates the vindicating nature of Chapter IV of the Report. Since its creation, UCA, formerly UCAN, has strived to construct public safety communications sites that best serve Utah's citizens. Factors that UCA considers when selecting a public safety communications site included coverage, cost, timeline, and partnership. As the Report noted, UCA has entered into numerous partnerships with government and private partners throughout Utah, utilizing others' resources and sharing our own. While it is true that historically UCA did not *systematically* publish broad based requests for co-location or backhaul services. UCA would, nevertheless, do a thorough analysis of the location and individually approach tower owners to co-locate, if possible. Since March of 2019, and in conjunction with the largest construction project UCA has undertaken in recent history, UCA adopted a new process whereby it publishes a request for co-location that anybody can view and respond to, as detailed in the Report. As detailed in the Report, generally UCA is able to construct its sites for less than the co-location quotes that are being returned or our tower sites are too remote for other carriers. Regardless, this process has provided a very transparent process whereby all parties have the opportunity and option to participate alongside UCA.

The Report also correctly indicated that UCA engages in an identical bid process with respect to its backhaul needs. Depending on a number of factors, UCA has found that sometimes it is more beneficial for UCA to partner with private fiber providers, however, this is not always the case. Until recently, fiber providers had a very limited number of geographically diverse fiber paths, limiting UCA's ability to rely on fiber for a public safety purpose. Now, however, UCA is excited and open to integrating fiber connections into its backhaul both in a primary and backup capacity.

Despite all of this, UCA was deeply concerned to hear the allegations made against it last year, claims that UCA was overbuilding its network to compete with private providers. UCA knew these claims were untrue and stated that they were inaccurate. Thank you for substantiating this position. We look forward to fruitful partnerships with private and government agencies going well into the future.

UCA is concerned with the Report's findings that UCA has not fully facilitated unified communication on public safety radios. Without discounting the findings in Chapter V of the Report, UCA does think it is very important to remind the reader that UCA has a unique radio system. In fact, your Report called it "different than other states in which different state agencies, cities, counties, or other regional jurisdictions fund and operate their own independent radio networks," and noted that it is the "envy" of other western states. The reason it is the envy is because of the amazing interoperability that exists within Utah, both between and among agencies, counties, and a vast geographical area. Accordingly, while Chapter V appropriately keys in on areas of improvement, these

things cannot be allowed to overshadow the reality that Utah has the best public safety, emergency, radio communications network in America.

With that said, UCA appreciates the perspective that its focus on *macro* interoperability issues have left *micro* interoperability issues, individual agency interoperability issues, unaddressed by UCA's interoperability division. As addressed more fully below, UCA is already implementing changes aimed at addressing these concerns. However, what the Report fails to consider is the fact that UCA's small force of Radio Technicians routinely assist these agencies in addressing and resolving interoperability issues. For example, the Report highlights an audio delay in a patch between 800 MHz users and VHF users in Carbon County. What the Report does not mention is that one of UCA's Radio Technicians has been working to resolve this issue since approximately June when it initially occurred and was reported to UCA and is waiting on additional information and assistance from Carbon County to implement what UCA believes will be a solution.

UCA also desires to thank you for your recognition of the role that UCA's Governing Board plays in the oversight of UCA. We agree that UCA's Governing Board "is providing adequate oversight," and I personally and especially appreciate the guidance and participation of smart, invested, and dedicated members who take very seriously the role they play in public safety. UCA was also encouraged in the recognition of its outstanding internal controls. Internal controls have been a focus at UCA since 2017 and we were pleased to see and hear that what we have in place meets expectations.

With all of that said, UCA would like to specifically address each and every recommendation directed at it and explain what UCA has done and/or will do to address these recommendations.

Chapter II, Recommendation #2: We recommend that the Utah Communications Authority, as part of its effort to fulfill the legal intent of the state 911 account, create minimum operational standards that require PSAPs to reduce transfers below a certain threshold.

UCA Response: UCA agrees that the reduction of transfers is an important objective that needs to be improved in Utah. As discussed above, UCA intends to set aside funds from the state 911 account and to work with its Advisory Committees and Governing Boards to set standards which must be met in order for PSAPs to obtain a portion of these funds. Previously UCA's minimum standards and best practices included a limitation on transfers, however, subsequent meetings with PSAPs led to the PSAPs petitioning for the removal of this standard. UCA intends to encourage its Advisory Committees and Governing Boards to consider standards which will reduce transfers below a certain threshold. UCA does note, however, that transfers are only one aspect of a rapid and efficient 911 response. Other areas of focus also include the time to answer a 911 call, whether a caller is placed on hold, whether the call-taker is properly trained, and other relevant and important factors in a successful 911 response.

Chapter II, Recommendation #3: We recommend that the Utah Communications Authority work with 911 stakeholders to identify other inefficiencies in the state 911 system that could be the subject of additional UCA funding standards.

UCA Response: UCA agrees with this recommendation. In May of 2019 UCA met with representatives of each of the non-federal PSAPs in Utah to review UCA's minimum standards and best practices. Consensus amendments were then presented to UCA's Governing Board and based on these recommendations, the minimum standards and best practices were amended pursuant to these suggestions. Since that time, individual PSAP representatives have taken suggestions to UCA's Advisory Committees which have followed the same process. At appropriate periodic intervals, UCA intends to work with PSAPs and its Advisory Committees to identify other inefficiencies in the state 911 system that could be the subject of additional UCA funding standards.

Chapter II, Recommendation #4: To enhance radio interoperability as discussed in Chapter V of this report, the Utah Communications Authority should consider a requirement that PSAPs routinely participate in interoperability exercises as a condition of receiving restricted funding from the Unified Statewide 911 Emergency Service Account.

UCA Response: As discussed above, UCA intends to set aside funds from the state 911 account and to work with its Advisory Committees and Governing Boards to set standards which must be met in order for PSAPs to obtain a portion of these funds. UCA intends to encourage its Advisory Committees and Governing Boards to consider a requirement that PSAPs routinely participate in interoperability exercises as a condition of receiving restricted funding from the Unified Statewide 911 Emergency Service Account.

Chapter III, Recommendation #2: We recommend that the Utah Communications Authority collaborate with PSAPs to identify systemwide inefficiencies and ineffectiveness and craft funding standards in *Administrative Rule* that will make Utah's 911 system more rapid, efficient, and interoperable.

UCA Response: As discussed above in response to Chapter II, Recommendation #3, UCA has an open dialogue with PSAPs and its Advisory Committees to identify systemwide inefficiencies and ineffectiveness. And UCA has already begun drafting proposed administrative rules that will connect these standards to funding, thereby making Utah's 911 system more rapid, efficient, and interoperable. These proposed rules will be provided to UCA's Advisory Committees to review and consider before being presented to UCA's Governing Board and, ultimately, presented for public comment, as statutorily required. In addition, UCA intends to continue to pursue the implementation of the statewide NG911 network and call-taking equipment which will also make Utah's 911 system more rapid, efficient, and interoperable.

Chapter III, Recommendation #3: We recommend that law enforcement, PSAP directors, and other PSAPs work with the Utah Communications Authority to identify funding standards that will make Utah's 911 system more rapid, efficient, and interoperable.

UCA Response: Though this recommendation is not expressly for UCA, we desire to express our willingness to participate with law enforcement and PSAPs to identify funding standards that will make Utah's 911 system more rapid, efficient, and interoperable.

Chapter IV, Recommendation #2: We recommend that the Utah Communications Authority refine its process for comparing bids to internal costs for building radio sites by

including estimates for internal maintenance costs, a more accurate useful life of equipment, and a methodology that accurately reflects future cash flows.

UCA Response: Every factor that the Report recommends UCA consider has been included in the last round of analysis performed. In UCA's Governing Board meeting in November, UCA presented the results of 35 separate requests for bids. Though there were only three responses to these 35 requests, UCA included estimates for internal maintenance costs, a more accurate useful life of equipment, and a methodology that accurately reflects future cash flows. In reality, the only reason these factors were previously omitted from prior analysis was simply that they were immaterial. Some of these omissions would make UCA's costs appear to be less while others would make the bidder's costs appear to be less. None, however, would have changed the outcome, as noted by the Report which states that these omissions do "not appear to have affected the decision to build or contract for sites and data connections." In any event, these factors have been and will continue to be considered in UCA's analysis.

Chapter V, Recommendation #1: We recommend that the Utah Communications Authority, as directed by law, coordinate with stakeholders to develop solutions to interoperability problems.

UCA Response: As the Report noted, UCA's Interoperability Division is very involved in large scale interoperability efforts but may be understaffed to address the more localized interoperability issues that arise. In order to better coordinate with stakeholders to develop solutions to interoperability problems, UCA is considering increasing personnel to include a person or people expressly dedicated to work with agencies to address localized interoperability issues and concerns.

Chapter V, Recommendation #2: We recommend that the Utah Communications Authority develop *Administrative Rules* to specify which local agencies can use the 800 MHz radio network.

UCA Response: UCA intends to provide a draft of these rules to the Chairs of UCA's Advisory Committees on or before December 12, 2019. It is expected that UCA's Advisory Committees will review, consider, and comment on these proposed rules prior to their presentation to UCA's Governing Board and, ultimately, presentation for public comment pursuant to the Utah Administrative Rulemaking Act.

Chapter V, Recommendation #4: We recommend that the Utah Communications Authority communicate information on network compatible radios to stakeholders.

UCA Response: This information is currently found on UCA's website, www.uca911.org both under the Radio Division tab as well as under the P25 tab. Part of the recent difficulty in communicating this information to stakeholders has been, as noted in the Report, that it is "difficult to definitively say which radios will work in the future." However, UCA has made repeated efforts to communicate the information it does know and, more importantly, to encourage anybody who needs to purchase a radio to contact either UCA's P25 Division Director and/or UCA's Radio Programming Manager. We will continue to deliver these messages as broadly and as often as possible.

Chapter VI, Recommendation #1: We recommend that the Utah Communications Authority Board adopt a policy outlining financial control policies and procedures.

UCA Response: UCA appreciates the recognition the Report provided that its internal controls were adequate. Since 2017 this is something that UCA prides itself on. Capturing these internal controls into actual policies is underway and it is anticipated that UCA's Governing Board will adopt these policies at its next meeting which is expected to be held December 11, 2019.

Chapter VI, Recommendation #2: We recommend that the Utah Communications Authority conduct a full review of internal practices against the Utah Division of Finance standards for internal financial controls to ensure that policies and procedures are complete.

UCA Response: UCA has completed this review and found that with few exceptions UCA's internal practices and financial controls are complete. Any deficiencies have been corrected and included in the policies and procedures addressed in response to Chapter VI, Recommendation #1 and UCA is in the process of implementing any changes.

Chapter VI, Recommendation #3: We recommend the Utah Communications Authority Board determine how to best provide board meeting materials to help meeting attendees better understand the decisions being made.

UCA Response: It is important to note that UCA is compliant with both the Open Public Meetings Act and the Governmental Records Access Management Act, both of which were referenced in the Report. This recommendation is not one to bring UCA into compliance with these acts but, rather, a recommendation that UCA provide information above and beyond the statutory requirements. In order to comply with this recommendation and provide attendees with better access to the information being presented and discussed at UCA's Governing Board meetings, UCA will employ PowerPoint or comparable software to present relevant materials for display in the room. To make these materials more accessible, UCA has recently upgraded its conference room hardware.

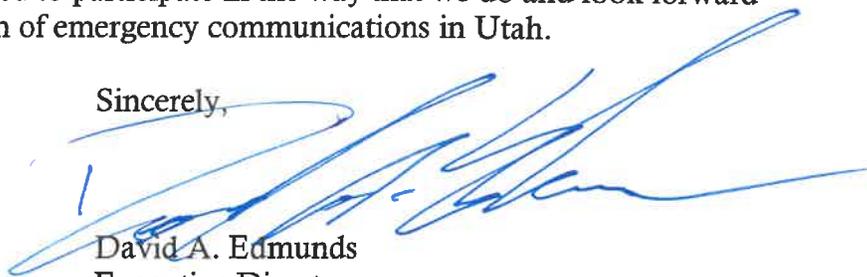
Chapter VI, Recommendation #4: We recommend that the Utah Communications Authority explore ways to make better use of existing state network resources.

UCA Response: UCA will arrange meetings with the Utah Department of Technology Services, the Utah Department of Transportation, and other relevant state agencies to explore if there are ways to make better use of existing state network resources.

In closing, I again wish to express my gratitude for the dedication, commitment, time, effort, and thought that has been poured into this audit. UCA believes that the suggestions made, if implemented, will greatly improve emergency services in Utah which is

UCA's primary goal. We are pleased to participate in the way that we do and look forward to the continual upward progression of emergency communications in Utah.

Sincerely,



David A. Edmunds
Executive Director
Utah Communications Authority



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of Public Safety

JESS L. ANDERSON
Commissioner

December 5, 2019

Kade Minchey, Auditor General
Office of the Legislative Auditor General /
Utah State Legislature Audit Subcommittee
Utah State Capitol Building
350 North State Street
Salt Lake City, Utah 84115

SUBJECT: Legislative Audit Report No. 2019-15

Dear Auditor General Minchey & Audit Subcommittee Members,

Thank you for the opportunity to respond to the Performance Audit of Utah Communications Authority and 911 Operations, specifically the recommendations of Chapter II titled "911 Call Taking Services in Utah Could Be Improved" as well as an overall perspective of the Department of Public Safety's role with UCA. Representatives from DPS had multiple opportunities to meet with staff members assigned to this audit, and we appreciate their willingness to allow our input and perspective on these portions of the audit.

DPS is absolutely committed to exploring and identifying opportunities to improve 911 operations, and to minimize the need for 911 call transfers. We look forward to working with all stakeholders in providing the best possible 911 call taking procedures and services, and we value the information and recommendations provided in this audit. Attached you will find the DPS response, specific to the four recommendations provided at the conclusion of Chapter II as well as the findings and recommendations to Chapter VI.

Again, thank you for the extensive work, professionalism, and effort by those responsible for the findings of this audit and the associated recommendations. Please do not hesitate to contact me directly with any questions regarding our response.

Sincerely,

A handwritten signature in black ink, appearing to read "J. L. Anderson".

Jess L. Anderson
Commissioner

Audit No. 2019-15

A Performance Audit of the Utah Communications Authority and 911 Operations

Chapter II - 911 Call Taking Services in Utah Could Be Improved

1. We recommend that the Department of Public Safety work with local PSAP stakeholders throughout the state to reduce call transfers. This will likely require collaboration in multiple areas to address different locations' specific challenges.

DPS Response:

The Utah Department of Public Safety (DPS) agrees that every effort should be made to minimize or eliminate unneeded 911 call transfers. However, it should be acknowledged that in an effort to provide "Rapid and Efficient" 911 services, which includes the dispatching and coordination of needed emergency responders and resources, and given the nature and needed response of a specific 911 call, a call transfer may be the most effective way to accomplish both of these requirements. That said, any 911 call requiring immediate medical or other life safety needs should not be transferred. Additionally, when a 911 call is transferred it should be done consistent with established protocols and standards establishing requirements to be met prior to the call transfer. Currently, national standards and best practices do exist and are often implemented, but have not been formally adopted as state-wide requirements.

Opportunities that could be considered to minimize or eliminate unneeded 911 call transfers include:

- Formal standard operating procedures (SOP) to govern the transfer of 911 calls. This should include clear definitions on acceptable and non-acceptable 911 call transfers.
- Standards to define when it is appropriate to transfer a 911 call, with respect to the expectation for a "Rapid and Efficient" delivery of 911 services.
- Define current and emerging technologies to leverage a state-wide reduction in 911 call transfers, to include: Current CAD to CAD capabilities; possible functional enhancements of CAD to CAD; Next Generation 911 and accuracy of Geospatial Technology.

DPS is committed to working with allied PSAPs to identify opportunities to minimize the need for 911 call transfers, while not sacrificing the efficiencies realized by dispatching UHP troopers from the current consolidated communications centers. This is currently being done in multiple areas though informal agreements, which could be formalized and implemented more broadly. The responsibility of dispatching for UHP Troopers, working within multiple counties and in a largely traffic driven environment, creates unique challenges that affect "Rapid and Efficient"

delivery of 911 services. Response times to UHP incidents of 30 minutes to one hour are not uncommon in very rural areas of the state. This often creates constraints and opportunities that do not directly mirror those which occur in an urban area or within a single community.

DPS Communications Centers / PSAPs are unique in that each involves the consolidation of public safety agencies in one or more county(s). Each of these consolidated centers also provide services to all state agencies often covering vast amounts of very rural areas and roadways. These consolidations realize efficiencies in funding, staffing, capability and resource management. Most of the state law enforcement officers, UHP Troopers and Others, are able to effectively operate in multiple counties on a daily basis while maintaining contact and coordination through a single dispatch center. Without the effectiveness of a single center, many of these troopers and officers would be required to constantly switch between multiple local PSAPs within their area of responsibility.

2. We recommend that the Utah Communications Authority, as part of its effort to fulfill the legal intent of the state 911 Account, create minimum operational standards that require PSAPs to reduce transfers below a certain threshold.

DPS Response:

DPS supports this recommendation and will work diligently with UCA and local PSAPs to meet this expectation. We would also recommend additional analysis of 911 call transfers to better define, with respect to life saving and public safety needs and rapid and efficient delivery of 911 services, 911 calls that **will not** be transferred and those that can, should, or need to be transferred.

3. We recommend that the Utah Communications Authority work with 911 stakeholders to identify other inefficiencies in the state 911 system that could be the subject of additional UCA funding standards.

DPS Response:

DPS agrees, this could include staffing, call management, uniform standard operating procedures, and common technology to advance functional consolidation among all PSAPs.

4. To enhance radio interoperability as discussed in Chapter V of this report, the Utah Communications Authority should consider a requirement that PSAPs routinely

participate in interoperability exercises as a condition of receiving restricted funding from the Unified Statewide 911 Emergency Service Account.

DPS Response:

DPS agrees with this recommendation.

Chapter VI - UCA Board Is Generally Effective but Improvements Could Be Made

The Utah Department of Public Safety takes great awareness and pride in all things related to public safety. We support the functioning role of the Utah Communications Authority, the Board, and UCA staff. Several of the recommendations contained within this audit are associated with areas that will afford us as an agency the opportunity to support and work with UCA to be successful so that we can achieve overall communications and 911 emergency service success in Utah.

Based on the discussion had during the 2019 General Legislative Session focusing on whether UCA should fall under the Executive Branch, we respect the auditor's recommendation that moving UCA is simply a Legislative policy decision. If asked to assume the responsibility of taking on UCA, DPS remains committed to support this decision in any capacity we are asked to provide, including financial control policies and following internal practices from the Division of Finance and all other recommendations.



November 20, 2019

Kade R. Minchey, CIA, CFE
Auditor General
Office of the Legislative Auditor General
P.O. Box 145315
Salt Lake City, UT 84114-5315

Re: Chapter IV of the Performance Audit of the Utah Communications Authority

Dear Mr. Minchey:

Thank you for providing the Utah Rural Telecom Association (“URTA”) with the exposure draft of Chapter IV of the Performance Audit of Utah Communications Authority and 911 Report (“Audit Report”). We have reviewed Chapter IV and appreciate the time the audit team took to speak with the URTA members and professional way in which the audit of the issues contained in Chapter IV was conducted. Our response is limited to the findings and recommendations of Chapter IV.

URTA supports the recommendations provided in Chapter IV of the Audit Report. Specifically, in Chapter IV, the Audit team made the following recommendations.

1. We recommend the Legislature consider modifying statute to allow UCA to work with private entities similar to what the Utah Department of Transportation does and what neighboring states do. This could preserve current public/private partnerships and enable additional partnerships going forward.

URTA Response: URTA supports this recommendation and would support modification of the statutes governing UCA to preserve current public/private partnerships and enable additional partnerships related to infrastructure which would be beneficial to both UCA and other public or private entities. The UDOT model of cooperation has been very successful and URTA’s members have enjoyed outstanding relationships partnering with UDOT on fiber and conduit exchanges throughout the state. The UDOT statute sets forth particular requirements for the fiber/conduit trade process. We would encourage the Legislature to include sufficient parameters and legislative or executive oversight of the process if it determines to modify the statute as recommended.

2. We recommend the Utah Communications Authority refine their process for comparing bids to internal costs for building radio sites by including estimates for internal maintenance costs, a more accurate useful life of equipment, and a methodology that accurately reflects future cash flows.

URTA Response: URTA supports this recommendation and believes implementation of this recommendation will result in additional transparency in the process.

Again, URTA appreciates the ability to offer its support of the audit team's recommendations contained in Chapter IV. We also believe that the audit process has already had a positive impact on communications between the URTA members and UCA which we believe will continue into the future.

Sincerely,

The Utah Rural Telecom Association
Executive Committee