

**ANNUAL  
REPORT  
2022**



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## EXECUTIVE DIRECTOR'S MESSAGE

RWC Members and Interested parties –

2022 was another big year for the RWC, our Members, Associates, and Conditional Participants. Although the ongoing pandemic still had lingering effects on our work, the RWC has fully adjusted to the “new normal” of hybrid workplaces, without seeing any loss in productivity, efficiency, or accountability. Through the end of 2022, RWC staff have conducted well over 300 teleconference meetings, ranging from small, daily staff meetings to large, multi-jurisdictional conferences. With the significant geographic area that encompasses the RWC, we hope that the hybrid meeting options will help us maintain the high level of engagement from all our partners that we have seen over the past two years. Although most of our meetings were held remotely during 2022, we have developed and deepened relationships with more new partners and agencies which will serve the cooperative well moving into the future. Two of these which are noteworthy are the Emergency Responder Radio Communication System (ERRCS) collaboration with the Fire Marshal’s offices throughout the Valley, and welcoming the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) as the RWC’s first Long-Term Conditional Participant (LTCP). Despite supply chain challenges posed by the pandemic, the RWC continued to support several ongoing site-related projects in Goodyear, Surprise and Wickenburg to ensure sustainable and integrated system expansion. The RWC also partnered with the City of Tolleson to jointly construct a new site which replaced a costly leased site nearby. This project was managed entirely in-house by the Phoenix Radio Shop and, thanks to excellent cooperation from the City of Tolleson, was completed in less than a year.



RWC staff members remained stable in 2022, with all our staff continuing to grow within their respective roles, with two necessary reclassifications happening within the RWC Administration. Almira Santos was promoted from Accountant III to Accountant IV, and Nicholas Roosevelt was promoted from Management Assistant (MA) I to MA II. While the Phoenix Radio Shop faced the nationwide challenges of recruitment and retention, we are very pleased to communicate that they were able to fill both the ERRCS and the Network Transport positions. These positions are critical to managing safe growth across the Valley, and the challenges coming to the Network in 2023 in the form of Ethernet Backhaul migration. The RWC Staff continues to assist in any way to ensure that technical and operational challenges are met as effectively as possible.



## EXECUTIVE DIRECTOR'S MESSAGE (continued)

We greatly appreciate all the efforts of the Phoenix Radio Shop, Network Operations Center, other supporting Phoenix Departments, including Finance and Budget & Research, as well as technical representatives from our Member agencies. It should be noted that the Radio Shop's Network Transport Manager was awarded the individual Employee Recognition Award, and the RWC was chosen to be one of the key performance metrics for the new City Manager's Dashboard. While only two of many accolades, this recognition illustrates the quality of the Network and our people.

The RWC remains engaged in the regional Urban Area Security Initiative (UASI), and as we wrap up our Interference Detection System grant, we look for further opportunities, both in the Interoperable Communications and Cyber Security arenas. The RWC has been fully engaged in the upcoming Super Bowl LVII preparations, on all levels from the Core and Interoperable subcommittees to the Multi Agency Coordination Center (MACC). The Operations & Conventional Working Groups as well as the Radio Shop continue to provide excellent assistance for other regional events and coverage issues. I could not be more pleased by our staff, committees, and teams for their continued commitment to cooperation and regionalism.

The RWC spent a great deal of time in 2022 preparing for the future. Most importantly, the network-wide migration from T1 lines to Ethernet. This is the first major RWC project since the Time Division Multiple Access (TDMA) project and has required extensive groundwork. The RWC implements new technology in a measured and thoughtful approach and 2023 will be the year that we begin the migration. This change in backbone will not only enable the RWC to continue receiving the bi-annual SUA-II upgrades from Motorola but will also allow our members to take advantage of new cloud-based platforms and subscriber features. However, these valuable and innovative tools come with new vulnerabilities that are designed to be addressed by this project. The research gathered both regionally and nationally give us confidence that the Board approved solution will be a successful first step. Like all Networks, we will continue to manage our current projects while keeping a close eye on the future to maintain a resilient and secure mission-critical system.

A handwritten signature in black ink that reads "John Imig".

John Imig, Executive Director  
Regional Wireless Cooperative



## BACKGROUND

The VHF communications system formerly used by the City of Phoenix’s public safety and other departments was based on outdated technology and was no longer able to meet the operational needs of its users. After much study and several consultants’ recommendations, the city replaced the existing system with an APCO<sup>1</sup> Project 25, 800 MHz digital trunked radio system.

From this new system was formed the Phoenix Regional Wireless Network (PRWN) and began transitioning Phoenix Police, Fire and municipal departments to the new system. PRWN was intended to be a regional radio system supporting the City’s operations as well as the Fire Department’s automatic aid partners.

In 2008, with a clear understanding of what local government entities in the valley wanted from a regional communications system, PRWN was dissolved and became the Regional Wireless Cooperative, or RWC, with all new governance, policies, and procedures. The RWC now oversees the administration, operation, management, maintenance, and growth of this regional communications network.

### Governance

The RWC is a cooperative body formed under a series of Intergovernmental Agreements. Membership is open to all local, state, federal governmental and tribal entities and currently includes most of the communities in the Phoenix metropolitan area. Governance provides for a Board of Directors consisting of one executive representative from each Member. The Board directs the operation, maintenance, planning, design, implementation, and financing of the RWC.

The City of Phoenix serves as the “Administrative Manager” responsible for the administration and financial management of the RWC. Four administrative staff positions support the RWC: Executive Director, Accountant IV, Management Assistant II, and Administrative Aide. RWC staff are City of Phoenix employees residing in the Office of Government Relations.

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<sup>1</sup> APCO – The Association of Public-Safety Communications Officials is the world’s oldest and largest organization of public safety communications professionals and supports the largest U.S. membership base of any public safety association. It serves the needs of public safety communications practitioners worldwide - and the welfare of the general public as a whole – by providing complete expertise, professional development, technical assistance, advocacy and outreach (via APCO website).



## SYSTEM DESCRIPTIONS

**700 MHz Trunked:** The first is a trunked system based on the APCO P25, Phase II Standard. This network is a Motorola ASTRO 25™, Integrated Voice and Data system. It operates in the 700 MHz frequency band and uses standard Simulcast, IP Simulcast, and individual site trunking. The network consists of eight (8) major simulcast subsystems and ten (10) Astro Site Repeaters (ASRs) utilizing over 60 sites across the valley floor and surrounding mountains, providing wide area coverage across the entire metropolitan area.

Some of the benefits of this regional system include wide area coverage beyond what agencies could achieve individually; seamless *interoperability* (the ability for diverse public safety agencies to communicate directly, in real-time, as the need requires); shared resources, such as people, equipment and tower sites and funding and financial responsibilities shared by all members based on their relative size.

**VHF:** In 2019, the RWC assumed responsibility for the second system, which is a VHF simplex system that serves the region's fire departments as an adjunct to the RWC trunked system. This system, previously under the responsibility of the Phoenix Fire Department, is for enhanced communication during hazard-zone operations (Fires, Hazmat, Special Operations) where fireground communications are essential for public safety operations. The VHF system is comprised of 15 simplex channels utilizing 71 transmit and/or receive sites across the valley. RWC Fire Member agencies are billed separately for the use/maintenance of the VHF system, which is maintained entirely by the two RWC Maintenance Manager agencies (Phoenix, Scottsdale).



## INTEROPERABILITY

The RWC system provides a platform on which to build interoperability with many other agencies. Because of the regional nature of the system, significant grant funding has been made available to increase the regional use of the system and reduce the cost of membership in the RWC. Grants have been used to link the many dispatch centers, also known as Public Safety Answering points (PSAPs), in the Valley; add the City of Tempe to the network; increase system capacity to allow greater roaming and interoperability; add several mountain sites to be used for very wide-area coverage, emergency backup and wide area interoperability; provide connectivity to Peoria's new system; and provide cache radios to be used for emergencies.

The RWC system has been effectively used to provide interoperable communications for numerous special events in the metropolitan area. The system provided support for the annual Fiesta Bowl, BCS championship, two Super Bowls, and NBA and MLB All Star games. The Super Bowl games clearly demonstrated the need for a truly regional radio system and prompted more discussions between the metropolitan cities regarding more effective use of the RWC.

Many non-members of the RWC have programmed radios to allow them to interoperate with RWC members and other agencies around the Valley. These agencies include members of federal, tribal, state, county, local, quasi-government, and support agencies:



## INTEROPERABILITY (continued)

### Interoperability Participants

Ak-Chin Fire Department	Drug Enforcement Agency
Arizona Air National Guard	Federal Bureau of Investigations
Arizona Army National Guard	Fort McDowell Yavapai Nation Fire Department
Arizona Attorney General's Office	Gila River Indian Community
Arizona Department of Corrections	Grand Canyon University Police Department
Arizona Department of Game and Fish	Luke Air Force Base
Arizona Department of Health Services	Maricopa County Adult Probation
Arizona Department of Juvenile Corrections	Maricopa County Attorney's Office
Arizona Department of Liquor Licenses and Control	Maricopa County Department of Emergency Management
Arizona Department of Public Safety	Maricopa County Department of Transportation
Arizona Department of Transportation	Maricopa County Judicial Branch Security Department
Arizona Division of Emergency Management	Maricopa County Juvenile Probation Department
Arizona State University Police Department	Maricopa County Office of Enterprise Technology
BNSF Railway Police Department	Maricopa County Sheriff's Office
Bureau of Alcohol, Tobacco, Firearms and Explosives	Pinal County Sheriff's Office
Bureau of Land Management	Rural Metro Fire Department
Carefree Fire Department / Rural Metro	Salt River Pima Maricopa Indian Community
Casa Grande Fire Department	Topaz Regional Wireless Network (TRWC) Members
Cave Creek Marshal's Office	Union Pacific Railroad Police Department
Circle City / Morristown Fire District	United States Marshals Service
Community Bridges, Inc.	Yavapai County Sheriff's Office
Department of Homeland Security - Investigations (HSI)	
Department of Homeland Security – Tucson Air Branch	



***The Mission of the Regional Wireless Cooperative (RWC) is to provide seamless operable and interoperable communications for all Members through a governance structure founded on the principle of cooperation for the mutual benefit of all Members.***

In November of 2010, the newly formed staff of the RWC, as a component of the City of Phoenix's Government Relations Department, met to develop a strategic plan to assist them in serving the needs of RWC Members, Board of Directors, Executive Committee and other work groups. The following Value Statements are intended to focus staff's efforts and memorialize their commitment to support the RWC Mission:

**We Are Dedicated to Serving Our Customers**

We succeed by responding to and focusing our attention on the needs of our customers.

**We Value and Respect Diversity**

Understanding diversity helps us to work together and serve our communities.

**We Work as a Team**

Teamwork is the basis of our success. We use cooperation as our first tool in working with others.

**We Each Do All We Can**

We each have the opportunity and responsibility to develop and use our skills to the highest level.

**We Learn, Change and Improve**

We are open to new methods and we listen and learn from others. Training and education are the basis for our success.

**We Focus on Results**

Each of us knows the level of our customer satisfaction, our response time in delivering services and the cost of those services. We use information about the results we provide so we can improve.

**We Work with Integrity**

Whenever we make a decision, provide a service or deal with customers, we act with honesty and integrity.

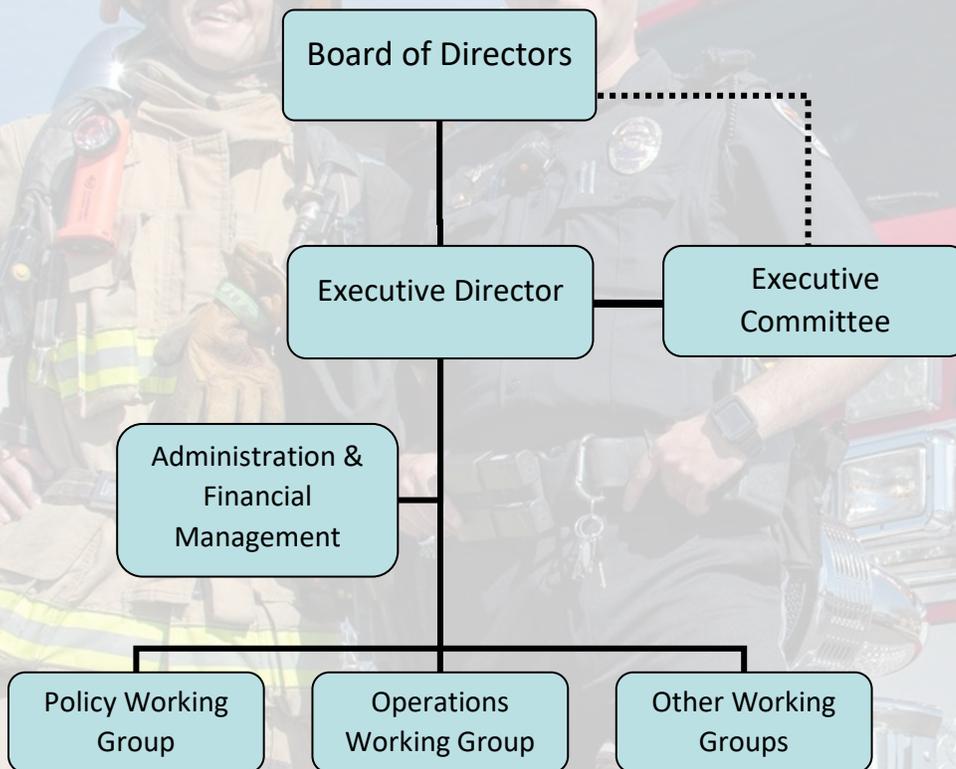
**We Make the RWC Better**

We work to make the RWC better. Improving the RWC is the reason we come to work each day.



## ORGANIZATIONAL STRUCTURE

The RWC is governed by a Board of Directors, with all members of the RWC having a seat and a vote on the Board. The Executive Director reports to the Board of Directors and serves as a non-voting member of the Executive Committee. The Executive Director is supported by the Executive Committee, the Operations, Conventional, and other Working Groups, in addition to three staff positions who assist with the administration and financial management of the RWC. The Executive Director and staff are City of Phoenix employees residing in the Office of Government Relations.





## FIRE AND EMS



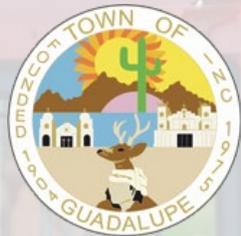


## LAW ENFORCEMENT

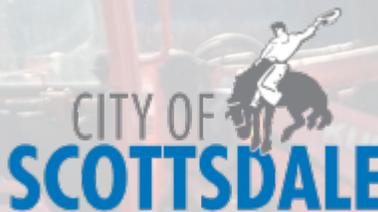




MUNICIPAL SERVICES



City of Phoenix





## BOARD OF DIRECTORS (2022)

### Chair

Paul Luizzi  
Fire Chief  
City of Goodyear

### Vice Chair

James Hughes  
Police Chief  
City of Maricopa

**Mark Burdick**  
Fire Chief  
Arizona Fire and  
Medical Authority

**Jeff Scheetz**  
Chief Information Officer  
City of Avondale

**Greg Platacz**  
IT Director  
City of Buckeye

**Joe Hester**  
Assistant Fire Chief  
Buckeye Valley Fire District

**Val Gale**  
Assistant Fire Chief  
City of Chandler

**Alan Zangle**  
Deputy Fire Chief  
Daisy Mountain Fire District

**Paul Marzocca**  
Police Chief  
City of El Mirage

**Milton 'Douglas' Wiener**  
Police Chief  
Federal Reserve Bank of  
San Francisco

**Rick St. John**  
Deputy City Manager  
City of Glendale

**Wayne Clement**  
Fire Chief  
Town of Guadalupe

**Jeff McMenemy**  
Fire Chief  
Harquahala Fire District

**Roy Stanifer**  
Communications and  
Records Manager  
Maricopa Community  
College District

**Michael Cole**  
Commander  
Town of Paradise Valley

**Kris Dalmolin**  
Information Technology Director  
City of Peoria

**Steen Hambric**  
Chief Information Officer  
City of Phoenix

**Bianca Lochner**  
Chief Information Officer  
City of Scottsdale

**Rob Schmitz**  
Fire Chief  
Sun City Fire & Medical

**Tracy Montgomery**  
Deputy City Manager  
City of Surprise

**Andrea Glass**  
Assistant Fire Chief  
City of Tempe

**Ginger Sanabria**  
PD Support Services  
Manager  
City of Tolleson

**Les Brown**  
Police Chief  
Town of Wickenburg



## EXECUTIVE COMMITTEE

The purpose of the Executive Committee is to provide high level expertise in communications and operations, advise the Board of Directors, help direct the efforts of the Executive Director and provide intermediate strategic direction for the RWC. Functions of the Executive Committee include review and approval of all proposals and recommendations, budget and financial reports, Network performance reports, and Board of Directors meeting agendas prior to submittal to the Board of Directors. The Executive Committee also identifies performance issues and recommendations for Network enhancements and construction.

The Executive Committee consists of five Representatives appointed by the Board of Directors, plus the Executive Director who is a non-voting member. Representatives, selected from the RWC Membership, consist of one (1) Police Department executive manager; one (1) Fire Department executive manager; one (1) Municipal executive manager; one (1) Chief Information Officer (or equivalent); and one (1) executive manager from the Administrative Managing Member. The Executive Committee may not be comprised of Representatives from only one Member and every two years the Board of Directors reviews the Executive Committee representation. The Executive Committee Chair serves a two-year term.

The Executive Committee conducts regularly scheduled meetings at least once monthly prior to the Board of Directors meeting.

### Executive Committee Members

#### Chair

Jeff Schripsema  
Deputy Fire Chief  
City of Phoenix  
Fire Service Representative

#### Vice-Chair

Mike Gent  
Deputy City Manager  
City of Surprise  
Municipal Services Representative

Feroz Merchhiya  
Chief Information Officer  
City of Glendale  
Information Technology Representative

#### Area Representatives

Jesse Cooper  
Police Administrator  
City of Phoenix  
Police Representative

Tom Grebner  
Wireless Communications Manager  
City of Phoenix  
Administrative Manager Representative



## **OPERATIONS AND CONVENTIONAL WORKING GROUPS**

The Combined Conventional and Operations Working Groups (CWG/OWG) are responsible for addressing network services, operations and maintenance issues, performance issues, Impact Assessments, and other Network technical matters for both the Trunked and VHF systems. The group consists of Member agency technical and operational practitioners and pursuant to the governance Subsection 2.2.12, are tasked with the following: discussing and/or providing operational or field input regarding RWC Network use and performance; sharing knowledge and experience; receiving input from RWC department delegates, industry providers or RWC management (or RWC management designee); and conduct other related activities. Currently, the group meets monthly, and the meeting is facilitated by the Executive Director. These meetings provide a forum to address issues large and small and their importance cannot be overstated.

Operations Center  
Entrance



## POLICY WORKING GROUP

The Policy Working Group (PWG) is responsible for developing, reviewing (every policy and procedure must be reviewed at least every two (2) years) and modifying RWC policies and procedures. The PWG consists of representatives from Member agencies and meets monthly or as required throughout the year. Policies and procedures completed by the PWG must be approved by the Operations Working Group, Executive Committee or Board of Directors prior to implementation. This year, the PWG worked to find a way to allow Federal Partners to take advantage of our robust Network while understanding their inability to join as full-fledged Members. This work spearheaded by staff, the Policy Working Group and the Board allowed the ATF to become the first Long-Term Conditional Participant user of our system and we expect to see growth in this category

Notably, the PWG also addressed a serious safety concern regarding the in-building treatment on large campus style building projects. Prior to the committee's work, a campus could be treated with multiple Bi-Directional Amplifiers, each in turn creating so much signal disruption that they could negatively impact the system and render each other useless. After significant national research and cooperation from the Valley Fire Marshals, the PWG drafted a new policy requiring campus style buildings to be tied together on a single system. This will result in markedly safer buildings for the region and our responders.



## FINANCIAL MANAGEMENT

The responsibilities and tasks of managing the financial well-being of The Regional Wireless Cooperative includes Fund management, Budget Development, Subscriber Unit Rates and Fees, Member Billing, Procurement, Financial Reporting and Financial audit

### Budgetary Information for Fiscal Year 2021-22 and 2022-23

<b>RWC Trunked Network Annual Budget</b>	<b>FY 2021-22</b>	<b>FY 2022-23</b>
Operations, Maintenance and Staffing	\$ 7,935,103.00	\$ 8,235,398.00
System Upgrade (SUAll)	\$ 2,791,148.00	\$ 2,820,074.59
700MHz Narrow Banding, TDMA, Lifecycle Upgrade	\$ -	\$ -
Required Minimum Balance	\$ -	\$ -
<b>Total Budget</b>	<b>\$ 10,726,251.00</b>	<b>\$ 11,055,472.59</b>
Subscriber Unit* <sup>2</sup> Rate	\$ 33.46	\$ 34.48
Total Positions (Administrative Staff)	4	4

<b>RWC Conventional Network Annual Budget</b>	<b>FY 2021-22</b>	<b>FY 2022-23</b>
Operations, Maintenance and Staffing	\$ 484,269.00	\$ 491,013.00
Special Assessment	\$ 351,180.00	\$ 351,180.00
Required Minimum Balance	\$ -	
<b>Total Budget</b>	<b>\$ 835,449.00</b>	<b>\$ 842,193.00</b>
Subscriber Unit* Rate	\$ 10.28	\$ 9.72

<sup>2</sup> \* Includes: mobile and portable radios, dispatch consoles and control stations.



## FINANCIAL MANAGEMENT (continued)

### **Funding**

The RWC is funded through annual membership fees and special assessments from the Members. The annual membership fees are used to pay for administrative services, network operations and maintenance services, network infrastructure replacement, and system upgrades.

### **Operations, Maintenance, and Staffing Costs**

The operations, maintenance, and staffing portions of the budget are used to pay for the cost of maintaining and staffing the RWC Network. Operations and maintenance expenditures include labor costs related to network operations and maintenance, microwave expenses, and software subscription and service agreements contracted through Motorola. Other costs include land leases, utilities charges, insurance premiums, and maintenance managing member expenses. Staffing includes costs associated with the RWC Executive Director and the support staff. Such costs include salaries for staff and an Encryption Specialist, and office expenses.

### **Capital Improvement Project Fund**

Funds budgeted for system upgrades, infrastructure replacement and other long-term capital improvement projects (CIP) are accounted for in this fund. Funds from RWC members deposited into the CIP Fund are included in determining RWC Members' equity percentages.

### **Operating Fund Contingency**

The Operating Fund Contingency is used to provide a contingency for the cost of operating and maintaining the communications network. Member billing for the required minimum balance is accounted for in an RWC operating reserve fund.

### **Equity**

Members of the RWC who contributed assets or funds to pay for RWC infrastructure have equity in the RWC. The total Members' equity in the RWC is equal to the Net Position of the RWC.



## FINANCIAL MANAGEMENT (continued)

### Awards

The Government Finance Officers Association of the United States and Canada<sup>3</sup> ("GFOA") awarded a Certificate of Achievement for Excellence in Financial Reporting to the RWC for its comprehensive annual financial report for the fiscal year ended June 30, 2021. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports. The RWC has won this award every year since 2012 and has already submitted for FY22.



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<sup>3</sup> <https://www.gfoa.org/>



## PROJECTS AND MAJOR INITIATIVES

Below are just a few of the projects and initiatives undertaken by the RWC in 2021-2022. They were aimed at increasing radio coverage, reliability, and efficiency. They not only showcase the Regional Wireless Cooperative as a highly reliable public safety radio communications system, but also, they highlight our commitment to equity and regional partnership.

### COMPLETED IN 2022

#### **SUA-II Logging Recorder Upgrade Contract**

The Board of Directors approved staff recommendations to allow members to optionally include logging recorders in the Motorola SUA-II agreement, regardless of brand, and to bill the user agency directly. Previously, only one brand of logger was included in the SUA-II and it was being paid for by all of the Members regardless of use. The RWC, after significant negotiations with Motorola Solutions Inc, and the City of Phoenix Procurement Department, finalized this long-term upgrade contract.

#### **Tolleson Wastewater Treatment Plant Site**

The RWC is working to move off the leased space at the Cashion site to a new tower at the Tolleson Wastewater Treatment Plant. This move should not only provide better security and access, but it also will end an expensive lease recouping its moving costs in approximately six (6) years. The project was finished quickly and was managed entirely in-house. The cooperation between the Radio Shop and the City of Tolleson was a shining example of regional cooperation.

#### **Urban Area Security Initiative (UASI) Grant**

The RWC drafted and managed the submission of a multidepartment UASI grant for an Interference Detection System. It was awarded the full amount requested (\$150,000) and due to its viability and high priority, was chosen for reallocation funding within the current fiscal year. This will not only make the Network safer, but also it will result in cost savings for all Members. This project exemplifies the regional goals of the RWC and was made possible by the great collaboration of the RWC, Phoenix Police Department and the Phoenix Radio Shop. It was completed in 2022 and is being tested and expanded for a trial run during Super Bowl LVII in 2023.

#### **Emergency Responder Radio Communication Systems (ERRCS)**

The RWC Board of Directors approved the addition of an ERRCS specialist position in 2020. This position was filled, and the specialist provided support to all of our Members in regard to in-building treatments.



## **PROJECTS AND MAJOR INITIATIVES (continued)**

### **RWC Transport Specialist**

In December 2021, the Board of Directors approved the addition of a Transport Specialist tasked with ethernet backhaul. This position is critical to meeting the Motorola Ethernet Upgrade. It was filled in early Calendar Year 2022.

### **RWC Network Security Review**

In 2021, the Phoenix Radio Shop underwent an extensive technical audit. This resulted in some very helpful recommendations, including reviewing our Network Security. The RWC conducted an in-depth review of our policies, procedures, best practices, and security needs. The Policy Working Group spearheaded this project and worked with the member agencies as well. This review was completed in CY 2022 and resulted in significant policy changes.

## **IN PROGRESS**

### **City of Buckeye**

The RWC continues to work with Buckeye on a new RWC subsite for Simulcast J. This is planned to replace a current leased site that has an annual cost to the RWC. This project is moving forward and will continue into CY 2023.

### **City of Surprise**

Surprise is in the process of installing a new Simulcast G subsite which will be located at a new fire station in the northwest part of the city. This site will also include Fire VHF (Hazard Zone) equipment. This project will continue in CY 2023.

### **TDMA Migration**

With the TDMA upgrade completed, the network continues to convert talkgroups that have TDMA compliant radios to TDMA 'dynamic dual' mode. At this point, our members continue to work toward utilizing TDMA. Some agencies have reached 100% and others are still preparing for the shift. Currently, 36.81% of all talkgroups have been converted to dynamic-dual mode.

### **Leased Lines Replacement**

The RWC continues to work to move the Network off leased T-1 lines. The Phoenix Radio Shop is working with each agency affected by these moves and will be working on this transition throughout 2023.



## PROJECTS AND MAJOR INITIATIVES (continued)

### **Ethernet Upgrade**

Motorola is mandating that the RWC network must be 100% Ethernet backhaul compliant by the end of CY 2022. Phoenix Radio Shop staff are replacing networking equipment and microwave radios to meet this requirement. The addition of the Backhaul Specialist position will provide significant support on this project. The RWC continues to work with Motorola to ensure that the upgrade costs are contained, and the integration is smooth. The RWC Board of Directors were presented and approved a comprehensive solution including a funding plan in Calendar Year 2022. Staff is working with the City of Phoenix to procure all needed contracts and will be initiating the work in Calendar Year 2023.

### **Scottsdale Microwave and VHF Replacement**

Scottsdale continues to replace their legacy microwave connections between sites, as well as installing new VHF (Fire Hazard Zone) radio equipment. This project is targeted for completion in Calendar Year 2023.

### **Town of Wickenburg**

Wickenburg, one of our newest members, is currently in the process of building a new site and facilities to begin using the network. In 2021, the Town Council voted to approve the contract and begin work. The RWC provided significant technical and oversight support and will continue to work closely to ensure their integration into the Network. This work will continue throughout Calendar Year 2023.

### **Burton Barr Library**

The RWC has been working closely with the Phoenix Library Department and Phoenix Fire to relocate a VHF site to this location from an existing fire station. This should not only reduce costs, but also provide the needed Motorola ethernet requirements.

### **City of Maricopa**

The RWC has been working with the City of Maricopa to help address coverage issues near their Fire Station 572. There are plans to install an RWC site at this location, which should be completed in Calendar Year 2023.



## SYSTEM PERFORMANCE

### Radio Counts

Radio counts give a generalized picture of the size and relative volume of the system. Radios on the system include all consoles, control stations, portables, and mobiles. They also include radios used by the RWC Members and those radios used by outside agencies for interoperability. Radio counts are updated quarterly, and the last year's totals are shown below:

#### RWC Trunked Network

FY 2021/22	July	October	January	April
<b>Member Total</b>	19,902	19,909	19,897	20,035
<b>Interoperability</b>	21,395	21,828	21,889	22,234
<b>Grand Total</b>	41,297	41,737	41,786	42,269

#### RWC Conventional Network

FY 2021/22	July	October	January	April
<b>Member Total</b>	4,139	4,208	4,213	4,299



## SYSTEM PERFORMANCE (continued)

### Overall System Statistics

The following charts provide a compilation of the overall system statistics including the number of calls, system busies and emergency calls, including the total and average duration of each type of call. A busy signal occurs when a user tries to make a call, but all channel resources are in use and thus the user must wait to complete the call. An emergency call occurs when the user presses the emergency button on a radio. Grade of Service (GOS) for the system is also shown; GOS is explained in more detail in the next item. System statistics provide a general overview of system performance, but they cannot be used as the final guide since statistics must be viewed individually for each sub-system to truly see the performance from the user perspective. These statistics are not shown in this report since they are so voluminous.

FY 21/22 System Statistics	
Total Number of Calls	26,063,767
Total Call Duration (Hours)	61,576
Total Call Duration (Sec)	221,673,600
Average Call Duration (Sec)	8.50
Average Calls per Day	71,407
Total Busies	195
Busy Duration (Hours)	0.14
Total Busy Duration (Sec)	512
Average Busy Duration (Sec)	2.6
Average Busies per Day	0.5
Total Emergency Calls	2,523
Total Emergency Duration (Hours)	19.54
Total Emergency Duration (Sec)	71,574
Average Emergency Duration (Sec)	28.4
Average Emergencies per Day	6.9
FY 21-22 System Reliability	99.98%



## SYSTEM PERFORMANCE (continued)

### Grade of Service

Grade of Service (GOS) is a measure of how many times a user gets a “Busy” signal when a user “Pushes to Talk” (PTT) on their radio. GOS is measured in percent as the number of PTT’s where a Busy occurs divided by the total number of PTT’s. The design specifications for the RWC system is to maintain a GOS of 2% or less, which means that there will be only 2 Buses or less, out of each 100 PTT’s. GOS is measured on each Simulcast and Astro Site Repeater (ASR) subsystem. GOS reports are prepared weekly and the 2% GOS goal has not been exceeded on any subsystem. The following table shows the maximum GOS for the past year on each sub-system.

### System Use

System Use shows the averages of how many of the system’s channels are used. It is shown as a percentage of the number of channels used divided by the total number of channels available for each Simulcast and Intelligent Site Repeater (ISR) subsystem.

### Site Utilization / Grade of Service – FY 21-22

Site	Average Use	Peak Use	Average GOS	Peak GOS
<b>ZONES</b>				
Simulcast A (Phoenix PD)	29.77%	44.32%	0.000%	0.000%
Simulcast B (Phoenix Fire and Municipal Services)	21.21%	30.86%	0.000%	0.000%
Simulcast C (Southeast Valley)	22.32%	35.29%	0.000%	0.000%
Simulcast D (North Valley)	20.11%	35.37%	0.011%	0.570%
Simulcast F (Tempe)	14.10%	20.04%	0.000%	0.000%
Simulcast G (West Valley)	30.63%	47.80%	0.000%	0.000%
Simulcast H (Northeast Valley)	21.72%	33.27%	0.000%	0.000%



Simulcast J (Southwest Valley)	17.57%	28.52%	0.000%	0.000%
<b>SITES</b>				
Burnt Mountain	19.41%	29.82%	0.000%	0.000%
Mt Gillen	2.86%	6.13%	0.000%	0.000%
North Mountain	14.78%	28.37%	0.000%	0.000%
Quintero	1.15%	5.88%	0.000%	0.000%
Sacaton	7.55%	12.11%	0.000%	0.000%
Sky Harbor	10.38%	20.30%	0.000%	0.000%
South Mountain	16.94%	30.90%	0.000%	0.000%
Thompson Peak	10.06%	16.74%	0.000%	0.000%
Towers Mountain	9.40%	16.69%	0.000%	0.000%
White Tanks	11.50%	20.93%	0.000%	0.000%

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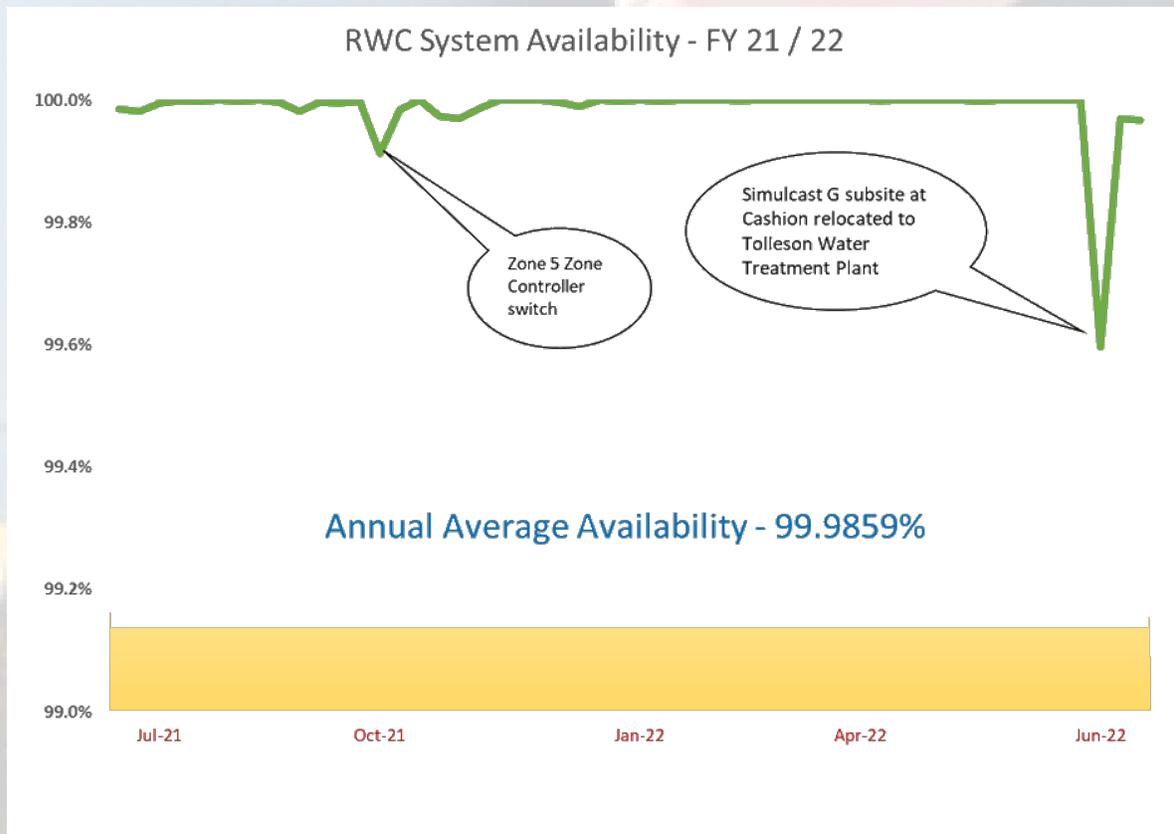
Glenda  
ARIZONA



## SYSTEM PERFORMANCE (continued)

### System Availability

System Availability<sup>4</sup> (SA) is a measure of the percentage of time that the system is operating normally, with no operational impact to the users. Since the system is made up of many Simulcast and ASR sub-systems, the SA is the combined availability of all these subsystems. The goal is to keep the system operating as close to 100% available from the user's perspective. Note that failures may occur to various components, but due to the system redundancy, there is no impact to the user. If SA is less than 100%, it may be due to a failure in a single subsystem, with the majority of the overall network remaining available to the users. System Availability for the RWC network for the twelve-month period of July 2021 through June 2022 is shown below:



<sup>4</sup> The industry standard and baseline for system availability of public safety radio systems is 98.5%. The performance of the RWC Network is well above this standard. The scale above has been adjusted to a baseline of 100% to show performance values more easily.



## CITY OF PHOENIX RADIO SHOP

The City of Phoenix is the Maintenance Managing Member for all RWC zones except Zone 3 (Simulcast H) which operates in and is managed by the City of Scottsdale. The Phoenix Radio Shop has 26 highly qualified, dedicated professionals that work diligently on behalf of the Network. They, along with our Member agencies' wireless communications staff leads are what ensures the Network functions at its highest level.

The City of Phoenix as the Administrative Manager of the Cooperative is responsible for tracking of all subscriber radios on the RWC network. This work is done by the City of Phoenix Radio Shop, which provides quarterly reporting of subscriber activity for operations and maintenance billing.





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