



TRWC Board of Directors Meeting – Conference Call

September 14, 2017 - 9:00 a.m.

Video Conference: <https://global.gotomeeting.com/join/204683717>

Audio Bridge: 1-224-501-3412, Access Code 204-683-717

Public Attendance Access Only:

Queen Creek Municipal Services Building

Saguaro Room

22358 S Ellsworth Rd

Queen Creek, AZ 85142

Members of the public may address the Board on any item. Please complete a “Request to Speak Card”, located at the entry of the room and promptly turn it in to the Executive Director. There is a time limit of three minutes for comments.

Agenda

- 1) Call to Order and Opening Comments
 - a. [Materials](#) and Sign-in Sheet (public attendance access only)
 - b. Speaker Cards (public attendance access only)
 - c. Audio and Video Recording

- 2) Public Comment

Members of the public may address the Board on items not on the printed agenda. Please complete a “Request to Speak Card”, located at the entry of the room and turn it in to Missy Hunter prior to the beginning of the meeting. There is a time limit of three minutes for comments.

- 3) Discussion and Action on Board Meeting Minutes

[May 25, 2017 Board Meeting Minutes](#)

- 4) [Discussion and Possible Action on Communications Strategic Alliance Master IGA](#) – Dale Shaw

- 5) FirstNet Update – David Faulkner (FirstNet) and Karen Ziegler (AZDOA)

- 6) Update on Membership Agreements – Dale Shaw

- 7) Discussion and Possible Action on Committee and Working Group Updates
 - a. Executive Committee Update – Bob Badgett (Co-chair)
 - Regional PSAP Backup Connectivity
 - Service Area Review

 - b. User Group Update – John Locklin
 - VHF Project Update

- 8) Discussion and Possible Action on Network Administrator Updates:
- a. [Budget](#) and [Finance](#) Overview - Sherry McGlade
 - b. [Network Updates and Performance Overview](#) - Randy Thompson
 - [Microwave Network Router Replacement](#) – Randy Thompson

9) Comments from the Board

An opportunity will be provided for Board members to present a brief summary of current events. The Board is not allowed to propose, discuss, deliberate or take action at the meeting on any matter in the summary, unless the specific matter is properly noticed for legal action.

10) Next TRWC Board Meeting(s):

12/07/2017 9 to 11 a.m., PMGA

11) Adjournment



TRWC Board of Directors Meeting

May 25, 2017, 9:00 a.m.

Phoenix-Mesa Gateway Airport (PMGA)

Administration Building, Board Room

5835 S. Sossaman Road

Mesa, Arizona 85212

Video Conference: <https://global.gotomeeting.com/join/117507413>

Audio Bridge: 1-669-224-3412, Access Code 117-507-413

Members of the public may address the Board on any item. Please complete a "Request to Speak Card" located at the entry of the room and promptly turn it into the Executive Director, Dale Shaw. There is a time limit of three minutes for comments.

Agenda

- 1) Call to Order and Opening Comments
 - a. [Materials](#) and Sign-in Sheet
 - b. Speaking Cards
 - c. Audio Recording

Chairman Kross called the meeting to order and welcomed the attendees. He also provided instructions on the process for public comment and reminded the participants that the meeting is audio recorded.

- 2) Executive Session

Pursuant to ARS Sec 38-4321.03, Discussion of Gila River Indian Community Interoperability Agreement.

Marc Skocypec motioned to adjourn the TRWC Board of Director's Meeting and convene in Executive Session. Mark Openshaw seconded. All were in favor; the motion passed.

- 3) Public Comment

Members of the public may address the board on items not on the printed agenda. Please complete a "Request to Speak Card" located at the entry of the room and turn it into the Executive Director prior to the beginning of the meeting. There is a time limit of three minutes for comments.

No public comment requests were received.

- 4) Discussion and Action on Board Meeting Minutes

[December 15, 2016 TRWC Board Meeting Minutes](#)

Mark Openshaw motioned to approve the 12/15/16 TRWC Board Meeting Minutes and Mike Farber seconded. All were in favor; the motion passed.

- 5) Discussion and Possible Action on Gila River Indian Community Interoperability Agreement

Chairman Kross noted that the TRWC Board Members and staff appreciated the interest of the Gila River Indian Community for considering an Interoperability Agreement. The terms have been discussed over the past year and unfortunately, we have reached an impasse in these discussions and need to move on. But it is our hope that we can revisit this issue and the interest of the Gila River Indian Community in the next several months.

Dale Shaw stated the TRWC Board wants to continue discussions with them should they see fit to move forward. At this point we would possibly be entertaining revoking their conditional access to the network until that point in time that we reach some agreement. There should be no impact as they currently do not use the network as they anticipated the agreement be in place before they did.

Mark Openshaw motioned that the Executive Director send a letter indicating our decision to revoke access to the network. This of course would not preclude the need for emergency access and that standard governing rules would apply under those circumstances. Jerry Ward seconded. All were in favor; the motion passed.

6) [Discussion and Possible Action on Salt River Pima-Maricopa Indian Community Membership Request](#) – Dale Shaw and City of Mesa/SRPMIC Representatives

Dale Shaw explained the discussions with the SRMIC has centered around their work with Mesa on a dispatch agreement. It is now clear that membership is needed and they have issued a letter requesting such.

Mike Farber made a motion for Dale Shaw to work with the SRMIC to move forward to the next step to becoming a member in the TRWC Cooperative. Jay Ducote seconded. All were in favor; the motion passed.

7) [Discussion on Regional PSAP Backup Connectivity](#) – Liz Graeber (City of Phoenix)

Dale Shaw introduced Liz Graeber, of the City of Phoenix, who stated her team that oversees the 911 network's main goal is to see that the 911 network stays up. Liz Graeber introduced Dave Dansevicius, also with the City of Phoenix, who went over the background of Maricopa Region 911 as well as the material presented to the board in the meeting packet. Dark fiber refers to overbuilding for capacity, fibers not currently being used.

He indicated they are just looking to try to provide an additional redundant path to each site to provide extra resiliency to the 911 network and there is no expectation about time with this request.

Dale Shaw indicated this presentation is informational only. The Executive Committee will review and at the appropriate time bring it back for action to the Board.

8) [FirstNet Update](#) – Karen Ziegler (AZDOA)

Dale Shaw introduced Karen Ziegler of AZDOA, the State Project Manager for the Arizona FirstNet Planning Effort. Her responsibility is to manage the state effort in the planning effort as FirstNet delivers the state plans to Arizona.

As of March 30, FirstNet signed an agreement with AT&T to be the provider for the National Public Safety Network. FirstNet and AT&T are developing the state plan and the state portal. The State of Arizona has been meeting with our collective working groups and establishing state plan review teams to provide feedback to AT&T. She reviewed the seven diverse teams that have been implemented to review the aspects of the plan. AT&T is estimating the date of delivery of the plans is June 19. There is a web portal for reviewing the plan, one section for marketing, the general public, and one private. There will be 45 days to make comments on the comment feature in the portal to be compiled and submitted back to AT&T. There is no guarantee any action will be taken, but will consider what is said.

Once the feedback is provided, AT&T and FirstNet have another 45 days to review the comments and provide a final plan to the Governor. That should be mid-September, and then according to the law the Governor has 90 days to opt in or opt out of the Public Safety Network.

Opt in means that the Governor says okay, FirstNet go ahead and AT&T come in and build that network, we have no obligational risk as a state. Opt out means that the state will take on the responsibility, financial risk and personnel to build the radio access network here in Arizona.

DPS put out RFP's sometime last fall to look at alternative plans. The RFP will be reviewed in conjunction with the State plans to provide a well-rounded recommendation for the Governor to opt in or opt out.

There is no obligation for any agency to procure service from FirstNet, that is up to each individual agency. AT&T has stated that day one if the Governor chooses to opt in that network is going to be available to public safety. Procurement rules may prove a challenge to use AT&T as a service. The Procurement Team is looking into contract modifications.

The opt in has no cost to the State. DPS's RFP had three proposals and was more of a due diligence to weigh against what AT&T is offering. The opt out option is very high risk. We have many staff involved in this effort. At some point they may come and ask for the TRWC position to ensure there is a common voice on the topic.

9) Discussion and Possible Action on Committee and Working Group Updates

a. Executive Committee Update – Bill Peters (Co-chair)

-Governance Material Review Status

Bill Peters gave an update on the Governance Material that was recently completed and refers heavily to policy and procedure. It is expected to be completed in August or September at which time both documents will be submitted to legal for review. Once reviewed and any recommended changes made it will be brought before the Board.

-Membership Request Review (GRIC, SRPMIC)

The Membership requests were discussed earlier in the meeting.

b. User Group Update – Dale Crogan (Chairman)

-VHF Project Update

Randy Thompson will give an update in his Administrator update.

c. Governance Working Group – Dale Shaw

Dale Shaw stated this document, the Communications Strategic Alliance, is ready for legal review. Still on track to have this document in draft form presented to the Board at the September meeting for consideration. It is a master agreement that allows for multiple parties to join in.

10) Discussion and Possible Action on Network Administrator Updates:

a. [Budget](#) and [Finance](#) Overview – Sherry McGlade

Sherry McGlade presented a financial update as provided in the materials.

b. [Network Updates and Performance Overview](#) – Randy Thompson

Randy Thompson presented an overview of the memo provided to the board for the meeting packet including:

The Fire Hazard Zone Communication Infrastructure was discussed and he and introduced Ted McKenzie, a Project Manager from Motorola to speak to the subject. He indicated in testing anything below a 3.4 is a fail and they have had none fall below that number. Deputy Chief Brian Yox stated that the acceptance testing would be completed today and they will compile the results to share with the Board. It is on schedule to be turned over to the fire department for operational use on July 1.

An overview of Point to Point Microwave Radio Wireless Backhaul Lifecycle upgrade documentation was presented. It is the wireless system that hooks the towers together. The current equipment is no longer supported by the manufacture and is an older protocol. Our transmissions are now up to internet protocol transmission. This will bring the equipment up to our standards. Equipment will start being delivered in July and installed by

the end of the calendar year.

An overview of the non-capital projects, the Florence Gardens TOPZ site and the 7.16 upgrade memo was presented.

Randy Thompson reviewed the unscheduled impairments outlined in the Board packet. Although there were numerous impairments to the network, none of those were a complete failure.

Peak Channel usage was reviewed along with the upcoming events.

He also went over the Potential Point to Point Microwave Radio Interference issue caused by Higher Ground LLC, a mobile satellite earth station startup business. It is an item for the FCC to address as other companies have filed for reconsideration.

He stated the amendment to the Motorola Solutions Upgrade Assurance II Agreement was approved by the Mesa City Council on May 8, 2017 as indicated in the Board packet material.

- 11) Comments From the Board
Chief Farber indicated he really appreciates the monthly updates from Dale.
- 12) Next TRWC Board Meetings:
9/14/17 9 to 11 a.m., PMGA
12/7/17 9 to 11 a.m., PMGA
- 13) Adjournment

Communications Systems Strategic Alliance

September 2017

Guiding Principles

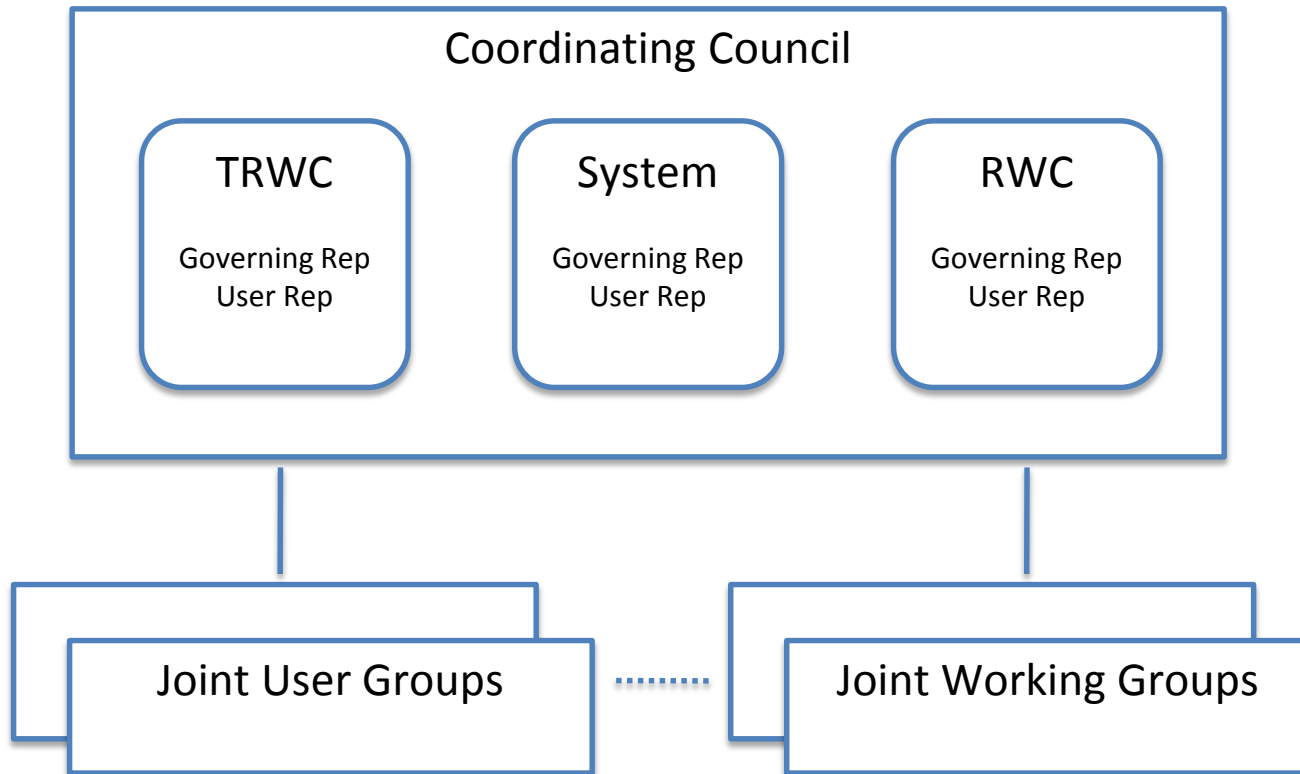
- Provide Valley-wide operable & interoperable communication services which are focused on the operational needs of the end user – universal “push to talk” coverage should be our overarching goal
- Maximize use of all existing resources including financial and personnel
- Establish and maintain system compatibility which is sustainable over time
- Focus on the needs of the end users which includes both first responders and the public

Mission & Vision

- Mission:
To achieve excellence in radio and data communications supporting public safety and municipal partners.
- Vision:
To assure seamless radio and data communications to meet the operational needs of the users in a cost effective and sustainable manner.

In Summary

- Master IGA structure with subordinate task orders
- Low-friction formalized approach to work together
- Emphasis on compatibility, cooperation, & sharing
- Coordinating Council to drive work among systems
- Heavy user participation to ensure needs are met
- Starting with TRWC & RWC, others likely to join
- December '17 execution, implementation to follow



INTERGOVERNMENTAL AGREEMENT

FOR

COMMUNICATIONS SYSTEMS STRATEGIC ALLIANCE

Draft

THIS INTERGOVERNMENTAL AGREEMENT FOR COMMUNICATIONS SYSTEMS STRATEGIC ALLIANCE (the "Master IGA") is entered into by and between the attached signatories, (individually a "Party" and collectively the "Parties").

RECITALS:

WHEREAS, public safety grade radio and data communications networks are critical resources for public safety first responders making timely and effective response to calls for preserving life, property and the general public safety and welfare;

WHEREAS, public safety first responders must provide service in situations requiring cross-jurisdictional use of neighboring or overlapping radio or data communications networks;

WHEREAS, public safety communications networks are expensive to build, expand and maintain;

WHEREAS, coordinated communications systems strategies are in the public's best interest;

WHEREAS, the Parties each administer a public safety communications system (individually a "System" and collectively "Systems") consisting, in part, of a collection of devices, software, hardware, technologies, facilities, towers or other devices or structures that provide voice and data communications capability and carry out their oversight responsibilities within the Parties' respective Systems;

WHEREAS, the Parties wish to collaborate concerning the delivery of communications services to their respective users when such collaboration benefits at least one of the Parties participating in a particular cooperative effort;

WHEREAS, the Parties are authorized to enter into this Master IGA by explicit authority granted by their respective Systems' governing documents or appropriate governing body action, and act on behalf of their respective System;

WHEREAS, the Parties are authorized to enter into intergovernmental agreements for services or for the exercise of joint or common powers, pursuant to Arizona Revised Statutes § 9-240, § 11-951, et seq., § 15-342(13) and §15-1444-B-4;

NOW, THEREFORE, the Parties, in consideration of the foregoing and the mutual promises contained herein, hereby agree as follows:

AGREEMENT:

Section 1. Coordinating Council and Committees

1.1 Coordinating Council. All initiatives and actions contemplated to be taken pursuant to this Master IGA will be evaluated by a committee consisting of representative(s) or alternate representative(s) from each of the Systems (“Coordinating Council”). The Coordinating Council will forward recommendations on any initiatives and actions within the scope of this Master IGA to each respective System’s governing body for consideration and possible action. The Parties must use diligent efforts to involve the Coordinating Council on Collaborative Efforts (defined in Section 3.1 below) between the Parties, but the Parties may take action independent of or not recommended by the Coordinating Council.

1.1.1 Coordinating Council Representatives. The Coordinating Council will be composed of representatives (“Coordinating Council Representatives”) who will be appointed as follows. Each Party will establish, through their respective System’s governing body, a primary representative from its governing System body to participate on the Coordinating Council. Each Party’s System’s governing body is entitled to have a maximum of two Coordinating Council Representatives. One representative must be an executive level member (“Coordinating Council Executive Representative”) who has direct involvement in the governance decision-making process for their respective System. In addition to the Coordinating Council Executive Representative, each Party may identify one Coordinating Council Representative that is an actual user of that Party’s System who possesses an understanding of routine operational system use (“Coordinating Council User Representative”). A Party’s System’s governing body may only have one Coordinating Council Executive Representative and one Coordinating Council User Representative.

1.1.2 Voting. All matters will be decided by a numerical vote. A numerical vote shall pass by the affirmative vote of a majority of the Coordinating Council Representatives present and voting. In case of a tie in votes on any motion, the motion shall not pass. There will be one vote per Coordinating Council Representative.

1.2 Committees and Working Groups. Committees and working groups will be established to advise and recommend initiatives and actions to the Coordinating Council.

1.2.1 Joint User Working Group(s). The Coordinating Council will establish joint user working group(s) to ensure end user needs are understood, coordinated, and addressed. The Coordinating Council may establish joint user working group(s) comprised of System users in all disciplines that use the System in accordance with Coordinating Council adopted policy applicable to those Systems where the policy has been ratified by that System’s governing body.

1.2.2 Other Joint Committees & Working Groups. The Coordinating Council will establish other joint committees and working groups in accordance with Coordinating Council adopted policy applicable to those Systems where the policy has been ratified by that System’s governing body.

1.3 Coordinating Council, Committee Support & Working Groups. As necessary, each System will provide direct support to the Coordinating Council and any committees by making their respective Executive Director (or equivalent) and staff available for advisement, meeting coordination, record keeping, and other duties.

Section 2. Term and Termination of Agreement; Expulsion of Parties; Addition of New Parties

2.1 Term. The term of this Master IGA shall begin _____, 20__ and continue until terminated as provided herein.

2.2 Termination

2.2.1 Termination For Convenience. A Party may terminate their participation in this Master IGA by delivering written notice to the other Parties. Such termination shall be effective on the date which is the earlier of (1) two (2) years after receipt of such notice by the non-terminating Parties or (2) a date agreed to by the non-terminating Parties.

2.2.2 Non-Appropriation. If any Party's performance under this Master IGA depends upon an appropriation of funds by their respective governing bodies, and if any Party's governing body fails to appropriate the funds necessary for performance, the affected Party or Parties may provide written notice of this failure to the other Parties and cancel either this Master IGA or the affected Task Order(s) (as defined in Section 4.1 below). Such written notice shall specify the effective date of such cancellation. Each Party shall endeavor to give the other Parties as much advance notice as possible of a cancellation for non-appropriation. Notwithstanding the foregoing, each Party shall make good faith, reasonable efforts to seek appropriation of the funds necessary for such Party's performance under this Master IGA.

2.2.3 Party Termination. A Party's participation in the relationship established by this Master IGA may be terminated (resulting in a "Party Termination") upon the affirmative vote of a majority of the other Parties' System's governing bodies. A Party Termination will result in removal of the terminated Party's Coordinating Council Representatives from the Coordinating Council and the loss of the associated Coordinating Council voting rights, removal of the Party's representatives from user committees and working groups, cessation of the Party's participation in Collaborative Efforts (including all rights and privileges accruing as a result of such participation), and termination of the Party's participation in Task Orders. A Party Termination will take effect sixty (60) days after completion of the vote, except that the Coordinating Council Representatives for the terminated Party shall be removed from the Coordinating Council and will lose associated voting rights effective immediately after a Termination vote.

2.2.4 Conflict of Interest. This Master IGA shall be subject to cancellation for conflict of interest pursuant to A.R.S. § 38-511.

2.3 Post-Termination – Property Disposition

2.3.1 Continued Ownership. Upon termination by a Party of its participation in this Master IGA or upon a Party Termination, each Party shall continue to own (i) all System resources that the Party owned prior to this Master IGA, and (ii) all System resources that were acquired pursuant to this Master IGA and any Task Order (as defined in Paragraph 4) signed by authorized representatives (as defined in Paragraph 9.12) of the Participating Parties (as defined in Paragraph 3.1 below) that identifies that Party or Parties as the owner of such System resources.

2.3.2 Shared System Resources. Upon termination by a Party of its participation in this Master IGA or upon a Party Termination, the Party that owns the System resources that are shared with the other Party or Parties shall cooperate with and give adequate time for the other Party or Parties to acquire a suitable replacement, remove any shared portion and/or work with the other Party or Parties to create and implement an action plan for the successful separation for the System resources that will no longer be available to it. During the post-termination period, the Party that owns the System resources will allow the other Parties to continue to use the System resources as necessary to carry on its operations for a maximum period of one (1) year.

2.4 Addition of New Parties. Any public entity who owns or operates a System may apply to become a Party to this Master IGA, entitled to all benefits and subject to all obligations accruing to the Parties (an "Application"). An applicant shall be admitted as a Party upon occurrence of all of the following events:

- 2.3.1 Applicant submits an Application to the Coordinating Council in writing.
- 2.3.2 The Coordinating Council will forward the Application to the respective Systems' governing bodies for review and approval.
- 2.3.3 After approval by a majority of the respective Systems' governing bodies, Applicant executes this Agreement, thereby becoming a Party.

Section 3. Collaboration on Acquisition and Use of System Resources

3.1 Authorization of Collaborative Efforts. This Master IGA authorizes two or more of the Parties (the "Participating Parties"), to collaborate on the acquisition, sharing, or use of communications related to the Participating Parties' Systems resources ("Collaborative Effort(s)").

3.2 Examples of Collaborative Efforts. The following is a non-exclusive list of potential Collaborative Efforts examples and is not intended to impose requirements or limit the potential joint, cooperative, or shared System resources or related services contemplated by this Master IGA:

- 3.2.1 Purchasing of equipment and related services.
- 3.2.2 Use of facilities and co-location of equipment.
- 3.2.3 Installation and use of connectivity and communications equipment.
- 3.2.4 Services such as maintenance of equipment.
- 3.2.5 Interoperable and/or operable use of each other's Systems.
- 3.2.6 Research and development.
- 3.2.7 Staff resources and support.
- 3.2.8 Sharing administrative expenses incurred pursuant to this Master IGA.
- 3.2.9 Policies & procedures.
- 3.2.10 Strategic planning.
- 3.2.11 Grant applications.
- 3.2.12 Technical coordination and planning to ensure Systems compatibility.
- 3.2.13 Review performance of shared resources.

3.3 Limitation. The Parties understand that their authority to provide in-house services to each other or to share resources is limited and that any joint or cooperative effort under this Master IGA must be for beneficial projects that are within each of the Parties' statutory authority and mission.

Section 4. Participating Parties' Task Orders

4.1 Authorization of Task Orders. The Participating Parties may enter into a task order for any Collaborative Effort(s) ("Task Order").

4.2 Task Order Financing. Pursuant to A.R.S. Section 11-952(B)(3), Task Orders that will require expenditures by any Participating Party will include a budget and allocation of anticipated costs to the Participating Parties. A Participating Party shall not be obligated to pay costs in excess of its anticipated allocation without its written approval.

4.3 Scope. Examples of items that Task Orders may address include, but are not limited to, Parties, duration, duties and responsibilities, ownership, security and personnel requirements, authorization for access to data, capital asset control matters such as inventory and insurance coverage, contract management, shared usage parameters, hours of operation, reimbursement of costs, and accounting requirements.

4.4 Project Management. For any Collaborative Effort(s) requiring implementation planning and coordination, the Participating Parties will manage the project according to an adopted joint project management policy. For Collaborative Efforts where the parties have executed a Task Order, the joint project management policy will be set forth within the Task Order.

Section 5. Records

Each Party shall maintain accurate and complete accounting records in support of all invoicing to the other Parties in accordance with generally accepted government accounting practices, and shall provide copies of such records to the invoiced Party upon request by the invoiced Party.

Section 6. Confidential Information

6.1 Definition. "Confidential Information" means any information, whether in electronic, written, graphic, machine readable, or other tangible form of a confidential or proprietary nature including, but not limited to, system infrastructure and security information, technical data, engineering details, construction documents, equipment lists, programming configurations, and operational procedures.

6.2 Obligations Regarding Confidential Information. The Parties shall hold all Confidential Information in strict confidence and shall refrain from using Confidential Information received from other Parties for any purpose other than fulfillment of the receiving Party's duties under this Master IGA or an applicable Task Order. When a Party receives a public records request or subpoena seeking disclosure of Confidential Information relating to another Party or another Party's System, the Party receiving the public records request or subpoena shall promptly notify the other Party so that the other Party may have an opportunity to object to disclosure.

Section 7. Indemnification and Insurance

7.1 Indemnification. Each Party (the "Indemnifying Party") shall, to the extent permitted by law, defend, indemnify, and hold harmless, jointly and severally, the other Party and/or other Parties and each official, agent, or employee thereof (any such person being referred to herein as an "Indemnified Party") from all Liabilities (defined below) to the extent provided in the remainder of this Section 7.1. This indemnity applies to any and all losses, claims, actions, judgments, damages, expenses (including reasonable attorneys' fees), or liabilities ("Liabilities"), joint or several, which the Indemnified Party may be subject to in law or in equity, but only to the extent that such Liabilities arise out of or based upon the negligent or intentional misconduct of the Indemnifying Party. Where bodily injury, personal injury, death, or loss of or damage to property is the result of the joint negligence or misconduct of two of the

Parties or all the Parties, each Party's duty of indemnification will be in proportion to its allocable share of such joint negligence or misconduct.

7.2 Insurance. Each Party, at its cost, shall maintain comprehensive general liability insurance with limits of not less than \$3,000,000 per occurrence, insuring against all liability of that Party and its authorized representatives arising out of and in connection with that Party's use or occupancy of the facilities. This insurance shall include coverage of the liability assumed under the indemnification provisions of this Master IGA. If the policy is to be written with an annual aggregate limit, that limit shall be not less than \$5,000,000. Comprehensive general liability shall name the other Parties to this Master IGA as additional insureds, a copy of which shall be provided at Master IGA execution and thereafter to the other Parties upon request. Each Party shall maintain worker's compensation insurance as required by statute and employer's liability insurance in an amount not less than \$1,000,000 per occurrence, which may consist of self-insurance. All insurance policies shall provide that the policies cannot be canceled, renewed, or limited in scope of coverage or limits until and unless the insurer endeavors to provide thirty (30) calendar days' prior notice to the other Parties.

7.3 Self-Insurance. Notwithstanding the provisions of Section 7.2, the obligations of the Parties, with respect to the insurance specified in this Section 7 may be satisfied by the existence of a self-insurance program containing the same coverage and limits specified herein with respect to third-party insurance. The aforementioned requirement to name other Parties as additional insureds shall not apply with respect to self-insurance. Furthermore, Parties self-insuring under this Section 7.3 need not secure any formal endorsement providing that the policies cannot be canceled, renewed, or limited in scope of coverage or limits until and unless the insurer endeavors to provide thirty (30) calendar days' prior notice to the other Parties; however, such Parties agree to provide thirty (30) calendar days' prior notice to the other Parties in the event that applicable self-insurance programs are canceled, renewed, or limited in scope of coverage or limits.

Section 8. Notices

8.1 Notices. All notices given, or to be given, by any Party to another Party or to the other Parties shall be given in writing and either delivered (i) in person; (ii) by registered or certified mail; (iii) by overnight commercial air courier or express service; or (iv) by email, so long as a hard copy of the notice is sent as provided by one of the methods set forth in (i) through (iii) of this paragraph. All notices shall be addressed to the Party at the address hereinafter set forth on the signatory page attached for each Party, or at such other address as any Party may designate by written notice. All notices, if sent by certified or registered mail, shall be deemed received upon actual receipt or (3) business days after deposit in the United States mail; if delivered in person, notices shall be deemed received at the time it is personally served; if sent via overnight commercial air courier or express service, receipt shall be deemed effective (1) day after the sending thereof; if sent via email, receipt shall be deemed effective as of the time the email is sent.

Section 9. General Provisions

9.1 Entire Agreement, Amendments. This Master IGA represents the entire agreement of the Parties with respect to its subject matter. This Master IGA shall not be changed, modified, or rescinded, except through a writing signed by all Parties.

9.2 Governing Law, Forum. It is mutually understood and agreed that this Master IGA will be governed by the laws of the State of Arizona, both as to interpretation and performance. Any action at law, suit, in equity or judicial proceeding for the enforcement of this Master IGA, or any provision thereof, will be instituted only in the courts of the State of Arizona.

9.3 Headings Not Controlling. Headings used in this Master IGA are intended for convenience or reference only and shall not control or affect the meaning or construction of any provision of this Master IGA.

9.4 Severability. In the event any term or provision of this Master IGA is held to be invalid or unenforceable, the validity of the other provisions shall not be affected, and the Master IGA shall be construed and enforced as if it did not contain the particular term or provision that is deemed to be invalid or unenforceable.

9.5 Nondiscrimination. The Parties agree to comply with all provisions of applicable federal, state, and local laws related to nondiscrimination, equal employment opportunity, and the Americans with Disabilities Act.

9.6 No Assignment. No Party shall assign or otherwise transfer this Master IGA or its rights or duties hereunder without the prior written consent of the other Parties. Any such assignment or other transfer, either voluntary or by operation of law, shall be void.

9.7 Surviving Provisions. The obligations under Section 2.2 (Termination), Section 2.3 (Post-Termination – Property Disposition), Section 4 (Participating Parties’ Task Orders) Section 4.1 through 4.3, Section 5 (Records), Section 6 (Confidential Information) section 6.1 through 6.2, Section 7 (Indemnification and Insurance) Section 7.1 through 7.3, Section 9.1 (Entire Agreement, Amendments), Section 9.2 (Governing Law, Forum), Section 9.3 (Headings Not Controlling), Section 9.4 (Severability), this Section 9.7 (Surviving Provisions), and any other Section which reasonably should survive, shall survive expiration or other termination of this Agreement.

9.10 Force Majeure. Any Party shall be excused for delay or failure to perform its obligations under this Agreement, in whole or in part, when and to the extent that such delay or failure is a result of causes beyond the control and without the fault or negligence of the Party unable to perform. Such causes include, without limitation, acts of God, acts of the public enemy, acts of the United States government, fires, floods, epidemics, quarantine restrictions, or embargoes.

9.11 Continuation of Master IGA. If any Party’s participation in this Master IGA terminates, all rights and duties under this Master IGA shall continue in full force and effect with respect to the remaining Parties to this Master IGA without further action.

9.12 Authorized Representatives; Counterparts. Authorized representatives shall sign this Master IGA on behalf of their respective Parties. This Master IGA may be signed in counterparts and the original signatures of all authorized representatives and of their attorneys may appear on separate signature pages.

9.13 Timing of Notice and Acts. If any act is required to be performed or notice given on a date which is a Saturday, Sunday or legal holiday recognized by the State of Arizona, the act or notice shall be performed or given on the next succeeding business day. Days herein shall include Saturdays, Sundays, and weekdays, except that as used herein the term “business day” shall exclude any day that is a Saturday, Sunday or legal holiday of the State of Arizona.

Section 10. Dispute Resolution

10.1 Dispute Resolution. Should any dispute arise in relation to this Master IGA or a Task Order, the Parties who are party to such dispute must make a good faith effort to reconcile such dispute through informal negotiation before filing an action in any court.

10.2 Default. A default occurs under this Master IGA when a Party breaches a material term or provision of this Master IGA or of a Task Order.

10.3 Notice. If a Party fails to cure its default within 30 days following receipt of written notice from another Party, that Party shall be considered in default.

10.4 Default Procedures. Upon the default by a Party, the Parties may, with the approval of the process by their governing bodies, refer the matter to non-binding mediation. The initiation of non-binding mediation shall not in any way impair the right of the non-defaulting Party(ies) to file a claim under Arizona Revised Statutes §12-821.01 and that statute shall be tolled for the period from the date of the approval of the governing bodies to mediate until the date that the mediation is complete.

10.5 Attorneys' Fees. In the event of any litigation instituted under this Master IGA or a Task Order, the successful Party to any such action (whether or not prosecuted to judgment) shall recover from the other Party(ies) reasonable attorney's fees and court costs as determined by the court.

[Signature pages to follow.]

Draft

IN WITNESS WHEREOF, the below-referenced Party has caused this Master IGA to be executed in counterpart:

The CITY OF PHOENIX, ARIZONA, an Arizona municipal corporation; for and on behalf of the Regional Wireless Cooperative as its Administrative Managing Member

By: _____
David Felix
Regional Wireless Cooperative Executive Director

APPROVED AS TO FORM:

ATTEST:

City Attorney

City Clerk

Address:

City of Phoenix
Executive Director, Regional Wireless Cooperative
200 W. Washington St.
Phoenix, Arizona 85003-1611
RWCExecutiveDirector@phoenix.gov

Field Code Changed

Copy to:
David Francis, attorney, COP
c/o etc.

IN WITNESS WHEREOF, the below-referenced Party has caused this Master IGA to be executed in counterpart:

TOPAZ REGIONAL WIRELESS COOPERATIVE
(Insert TOPAZ info here)



FISCAL YEAR 2017

**OPERATIONS, MAINTENANCE,
SPECIAL ASSESSMENT AND CAPITAL**

**PRESENTED
September 14, 2017**

Description	FY15/16 Actual	FY16/17 Budget	FYE Actual	\$ Var Incr/(Decr)	FY17/18 Budget
Personnel Services	\$508,301	\$492,000	\$374,771	(\$117,229)	\$486,600
Services	246,213	295,900	300,033	4,133	291,210
Commodities	735,478	764,600	754,953	(9,647)	1,017,200
Subtotal O&M	1,489,992	1,552,500	1,429,756	(122,744)	1,795,010
Special Assessment: VHF Ops	24,292	-	-	-	29,700
Contingency - 5% of total O&M	-	77,625	-	(77,625)	89,751
Total O&M	1,514,284	1,630,125	1,429,756	(200,369)	1,914,461
Projects	3,069,508	433,828	433,828	-	740,178
VHF Project	686,151	685,000	668,762	(16,238)	496,168
Total Topaz:	\$5,269,943	\$2,748,953	\$2,532,346	(\$216,607)	\$3,150,807

	FY15/16 Actual	FY16/17 Budget	FYE Actual	\$ Var	FY17/18 Budget
Mesa	\$3,868,228	\$1,954,170	\$1,797,706	(\$156,464)	\$2,244,111
Gilbert	911,086	477,842	427,886	(49,955)	536,674
Superstition Fire	79,783	64,237	67,293	3,056	59,222
Apache Junction	335,208	148,033	146,889	(1,144)	214,669
Queen Creek	56,601	45,453	44,272	(1,181)	38,814
Rio Verde	4,861	3,838	3,768	(70)	3,155
Southwest Ambulance	12,034	10,596	9,695	(901)	12,251
American Medical	504	2,608	1,958	(650)	2,450
Ft McDowell	1,637	42,177	20,885	(21,292)	39,461
	\$5,269,942	\$2,748,953	\$2,520,352	(\$228,601)	\$3,150,807



**FISCAL YEAR 2017/18
Year to Date Actuals
Through July 31, 2017**

**OPERATIONS, MAINTENANCE,
SPECIAL ASSESSMENT AND CAPITAL**

**REVISED
September 18, 2017**

Description	FY16/17	FY17/18	FY17/18	YTD
	Actual	Budget	Forecast	7/31/17 Actual
Personnel Services	\$374,771	\$486,600	\$390,840	\$37,419
Services	300,033	291,210	294,390	47,209
Commodities	754,953	1,017,200	1,017,200	-
Subtotal O&M	1,429,757	1,795,010	1,702,430	84,628
Special Assessment: VHF Ops	-	29,700	29,700	-
Contingency - 5% of total O&M	-	89,751	89,751	-
Total O&M	1,429,757	1,914,461	1,821,881	84,628
Projects	433,828	740,178	740,178	435,163
VHF Project	668,762	496,168	496,168	4,413
Total Topaz:	\$2,532,347	\$3,150,807	\$3,058,227	\$524,204

	FY16/17	FY17/18	FY17/18	YTD
	Actual	Budget	Forecast	Actual
Mesa	\$1,797,706	\$2,244,111	2,173,353	\$375,308
Gilbert	427,886	536,674	521,210	88,288
Queen Creek	67,293	38,814	37,033	2,072
Superstition Fire	146,889	59,222	58,379	5,027
Apach Junction	44,272	214,669	211,359	43,958
Ft McDowell	3,768	39,461	39,615	8,620
Rio Verde	9,695	3,155	3,067	178
Southwest Ambulance	1,958	12,251	11,842	618
American Medical	20,885	2,450	2,368	135
	\$2,520,352	\$3,150,807	\$3,058,227	\$524,204

TOPAZ FY 2016-2017 JOINT VENTURE COST SHARING

PRELIMINARY

FISCAL YEAR 2015-2016	TOTAL	COM	TOG	SFM	CAJ	TQC	RVFD	FtM
FIXED ASSETS								
Cost	9,711,138	7,262,751	1,667,179	82,508	639,749	48,718	10,233	-
Accum Depreciation	(1,927,757)	(1,434,382)	(347,511)	(28,730)	(100,646)	(13,119)	(3,369)	-
Net Book Value	7,783,381	5,828,369	1,319,668	53,778	539,103	35,599	6,864	-
CWIP	686,152	458,857	128,972	55,607	-	39,288	3,428	-
Liability - Lease on Upgrade	(1,735,310)	(1,293,913)	(298,232)	(8,401)	(128,113)	(6,126)	(525)	-
NET BOOK VALUE-FIXED ASSETS	6,048,071	4,534,456	1,021,436	45,377	410,990	29,473	6,339	-

FISCAL YEAR 2016-2017	TOTAL	COM	TOG	SFM	CAJ	TQC	RVFD	FtM
FIXED ASSETS								
Cost	9,750,933	7,293,191	1,648,227	86,312	648,039	48,610	10,064	16,490
Accum Depreciation	(2,428,706)	(1,820,735)	(423,514)	(33,226)	(130,492)	(15,151)	(3,549)	(2,039)
Net Book Value	7,322,227	5,472,456	1,224,713	53,086	517,547	33,459	6,515	14,451
CWIP	668,762	447,067	125,794	54,237	-	38,320	3,344	-
Liability - ReAllocated Lease on Upgrade	(1,301,482)	(969,095)	(207,645)	(9,051)	(99,164)	(4,329)	(261)	(11,937)
NET BOOK VALUE LESS LIABILITIES	6,689,507	4,950,428	1,142,862	98,272	418,383	67,450	9,598	2,514
NET CHANGE IN EQUITY	641,436	415,972	121,426	52,895	7,393	37,977	3,259	2,514

FISCAL YEAR 2016-2017	TOTAL	COM	TOG	SFM	CAJ	TQC	RVFD	FtM
EQUITY RECONCILIATION								
Depreciation Expense	(500,949)	(386,353)	(76,003)	(4,496)	(29,846)	(2,032)	(180)	(2,039)
CWIP Activity	668,762	447,067	125,794	54,237	-	38,320	3,344	-
Fixed Asset Additions	39,795	28,811	6,708	250	3,313	131	8	574
Reallocation of Network Upgrade Asset	-	1,629	(25,660)	3,554	4,977	(239)	(177)	15,916
Liability - ReAllocated Network Upgrade Lease	-	1,786	21,372	(3,667)	(4,106)	354	177	(15,916)
Liability - Upgrade Lease Payment	433,828	323,032	69,215	3,017	33,055	1,443	87	3,979
NET CHANGE IN EQUITY	641,436	415,972	121,426	52,895	7,393	37,977	3,259	2,514

ADDITIONAL BREAKDOWN OF FIXED ASSET COST and DEPRECIATION (% Split based on total TOPAZ)

PRELIMINARY

	% Split	Cost	Accum Depreciation	Net Book Value
CITY OF MESA:				
Infrastructure	74.8%	\$1,093,707	(\$396,158)	\$697,548
Machinery & Equipment	74.7%	\$6,199,485	(\$1,424,577)	\$4,774,908
Total	<u>74.74%</u>	<u>\$7,293,191</u>	<u>(\$1,820,735)</u>	<u>\$5,472,456</u>
TOWN OF GILBERT:				
Infrastructure	17.3%	\$233,903	(\$72,630)	\$161,273
Machinery & Equipment	16.6%	\$1,414,324	(\$350,884)	\$1,063,440
Total	<u>16.73%</u>	<u>\$1,648,227</u>	<u>(\$423,514)</u>	<u>\$1,224,713</u>
SUPERSTITION FIRE & MEDICAL				
Infrastructure	2.1%	\$27,668	(\$8,410)	\$19,258
Machinery & Equipment	0.5%	\$58,644	(\$24,816)	\$33,827
Total	<u>0.72%</u>	<u>\$86,312</u>	<u>(\$33,226)</u>	<u>\$53,085</u>
CITY OF APACHE JUNCTION				
Infrastructure	4.2%	\$57,089	(\$18,204)	\$38,885
Machinery & Equipment	7.5%	\$590,949	(\$112,288)	\$478,662
Total	<u>7.07%</u>	<u>\$648,039</u>	<u>(\$130,492)</u>	<u>\$517,547</u>
TOWN OF QUEEN CREEK				
Infrastructure	1.1%	\$15,394	(\$4,772)	\$10,621
Machinery & Equipment	0.4%	\$33,217	(\$10,378)	\$22,838
Total	<u>0.46%</u>	<u>\$48,610</u>	<u>(\$15,151)</u>	<u>\$33,460</u>
RIO VERDE FIRE DISTRICT				
Infrastructure	0.5%	\$5,975	(\$1,286)	\$4,689
Machinery & Equipment	0.0%	\$4,089	(\$2,263)	\$1,826
Total	<u>0.09%</u>	<u>\$10,064</u>	<u>(\$3,549)</u>	<u>\$6,514</u>
Ft McDowell				
Infrastructure	0.0%	\$0	\$0	\$0
Machinery & Equipment	0.2%	\$16,490	(\$2,039)	\$14,450
Total	<u>0.20%</u>	<u>\$16,490</u>	<u>(\$2,039)</u>	<u>\$14,450</u>
TOTAL				
Infrastructure	100.0%	\$1,433,735	(\$501,460)	\$932,275
Machinery & Equipment	100.0%	\$8,317,197	(\$1,927,246)	\$6,389,951
Total	<u>100.0%</u>	<u>\$9,750,932</u>	<u>(\$2,428,707)</u>	<u>\$7,322,225</u>

TOPAZ
 CWIP AND PLANT ADDITIONS
 FISCAL YEAR 2016-2017

PRELIMINARY

CWIP PROJECT	FISCAL YEAR 2015-2016							TOTAL
	COM	TOG	SFM	CAJ*	TQC	RVFD	FtM*	
VHF	\$458,857	\$128,972	\$55,607	\$0	\$39,288	\$3,428	\$0	\$686,151
TOTAL CWIP	\$458,857	\$128,972	\$55,607	\$0	\$39,288	\$3,428	\$0	\$686,151

CWIP PROJECT	Current Year Activity							TOTAL
	COM	TOG	SFM	CAJ*	TQC	RVFD	FtM*	
VHF	\$447,067	\$125,794	\$54,237	\$0	\$38,320	\$3,344	\$0	\$668,762
TOTAL CWIP	\$447,067	\$125,794	\$54,237	\$0	\$38,320	\$3,344	\$0	\$668,762

CWIP PROJECT	FISCAL YEAR 2016-2017							TOTAL
	COM	TOG	SFM	CAJ*	TQC	RVFD	FtM*	
VHF	\$905,924	\$254,766	\$109,844	\$0	\$77,608	\$6,772	\$0	\$1,354,913
TOTAL CWIP	\$905,924	\$254,766	\$109,844	\$0	\$77,608	\$6,772	\$0	\$1,354,913

*The City of Apache Junction and Ft McDowell are not participating in the VHF project.

Date: September 14, 2017

To: TOPAZ Regional Wireless Cooperative (TRWC) Board of Directors

Through: Dale Shaw, TRWC Executive Director

From: Randy Thompson

Subject: Administrator Update

Capital Projects

- 1) **Fire Hazard Zone Communication Infrastructure.** This infrastructure will enable the Mesa Fire & Medical Regional Dispatch Alarm Room to communicate with the mobile and portable radios in Fire Hazard or Hot Zones, which will be operating on Very High Frequency (VHF, 150-174 MHz) radio frequencies in analog simplex mode. The funding for this project is included in the TRWC budget. The project milestones with status and dates are shown in the Appendix.
- 2) **Point-to-Point Microwave Radio Wireless Backhaul Lifecycle upgrade.** This lifecycle upgrade will replace the point-to-point microwave radios that connect the radio towers in the TOPAZ network together to transport data to and from the network core. The current equipment is no longer supported by the manufacturer, and uses older technology that does not support current transport protocols. This project is budgeted in the TRWC FY2017-2018 capital budget. The project milestones with status and dates are shown in the Appendix.

Non-capital Projects

- 1) **7.16 Upgrade.** The TOPAZ infrastructure software was upgraded June 5-15, 2017. This upgrade was performed under the Motorola System Upgrade Assurance II contract, so there was no additional cost to the TRWC. Brief periods of "site trunking" were encountered during the upgrade, as expected, and notices were sent out by the upgrade project manager prior to the actual events.
- 2) **Additional Motorola Services.** Motorola was scheduled to begin providing additional services to the TRWC beginning July, 1, 2017. The summary of TRWC services provided by Motorola are shown in the Appendix. Unfortunately, Motorola was not prepared to begin these additional services as scheduled. On July 3, 2017, a Notice of Default and Opportunity to Cure letter was sent to Motorola Solutions. Motorola addressed the deficiencies associated with the additional services, and a letter acknowledging the successful cure of these deficiencies was sent to Motorola Solutions on August 3, 2017. The additional services are now being delivered by Motorola.

TRWC Administrator Update, September 14, 2017

Operations Summary

Unscheduled Impairments – Please see the unscheduled impairments graph on page 3. Since the last Administrator update on May 25, the unimpaired system availability has been as follows:

Month	Unimpaired System Availability	Comments
May, 2017	100.000%	
June, 2017	99.998%	6/8/17 & 6/27/17: Florence Gardens site out of service 12 and 8 seconds respectively due to network problems; 6/28/17: Mesa Community College site out of service 32 seconds due to network problems
July, 2017	100.000%	
August, 2017	99.981%	8/18/17: TRW subsite out of service 4 seconds due to network problems; 8/19/17: Range Rider subsite out of service 508 seconds due to network problems. The cause of these impairments was interference to the microwave radio at the Falcon Field radio tower. The cause of this interference and why the microwave did not switch to the redundant path remains under investigation.

Airtime and Radio Counts – the following charts are included:

- 1) Six month rolling average airtime usage by member for calendar year 2017 through August, 2017.
- 2) Average number of radios enabled by member for calendar year 2017 through August, 2017.
- 3) Six month rolling average airtime usage by service type for calendar year 2017 through August, 2017.
- 4) Average number of radios enabled by service type for calendar year 2017 through August, 2017.

Peak Channel Usage – the following charts are included:

- 1) Peak channel usage for each site for May, 2017, through August, 2017, is shown on the graphs at the end of this report. The following table is a summary of the number of days with an all channels in use event:

Month	Simulcast Cell	Florence Gardens	Shaw Butte	Thompson Peak
May, 2017	1	0	0	0
June, 2017	1	2	0	0
July, 2017	0	1	0	0
August, 2017	0	1	0	0

TRWC Administrator Update, September 14, 2017

- a. Although all channels were in use on several occasions as shown above, no system busies have been reported by users.

Other Operational Events:

- 1) The TOPAZ 800 MHz radio network backup capability was successfully tested during the 7.16 upgrade.
- 2) The City of Mesa Communications Building (quarterly) simulated power outage test was completed successfully on July 12, 2017. This test simulated only one generator being available during a power outage, and passed with no problem.
- 3) On August 1, 2017, two unrelated events occurred at the City of Mesa Communication Building:
 - a. One of the two chillers that provide cooling for the building had several electrical components in a control box overheat, causing the chiller to go out-of-service. The Communications Building cooling system is designed to operate on only one chiller, so the failure of the other chiller was only a redundancy impairment. The City of Mesa Facilities Maintenance department effected repairs the same day.
 - b. One of the two emergency generators for the building failed a weekly scheduled run test. This problem was also (believed, see below) corrected within the same day. This did not present an immediate concern, as the Communications Building emergency power is designed to run with only one generator. A portable generator was brought to the Communications Building and made ready to connect to the Communications Building in the event the other generator failed.
- 4) On August 8, 2017, one of the two emergency generators for the City of Mesa Communications Building again failed its weekly run test. The generator contractor was unable to reproduce the problem, but troubleshot the generator, and believe they traced the problem to a root cause. The suspected defective components were replaced, and the generator has so far passed its weekly run test.
- 5) On August 21, 2017, a battery or batteries in the Communications Building Uninterruptible Power Supply (UPS) failed and caused an acidic smell in portions of the 1st floor of the City of Mesa Communications Building. The batteries were replaced by the vendor and the UPS was back on line the afternoon of August 22, 2017. A simulated power outage test was conducted on August 30, 2017, and the UPS with the new batteries performed flawlessly. We are investigating additional alarming for the UPS as well as a ventilation hood to mitigate the acidic odor if this event were to occur again in the future.

Upcoming Events:

- 1) Testing of TOPAZ 800 MHz radio network backup capability is planned for September, 2017.
- 2) The next City of Mesa Communications Building (quarterly) simulated power outage testing is planned for 5:00 AM on October 11, 2017.

Other News:

- 1) **Potential Point-to-Point Microwave Radio Interference.** Higher Ground LLC, a mobile satellite earth station startup business, applied to the Federal Communications Commission (FCC) for a nationwide license to operate mobile satellite earth station transmitters in the 6 GHz radio frequency band. Higher Ground's license application was granted on January 18, 2017. The 6 GHz radio frequency band is the same radio frequency band utilized by the TRWC and other Public Safety communications networks for point-to-point microwave radio service, which connects the TOPAZ radio sites to each other and together as a network. The Higher Ground

TRWC Administrator Update, September 14, 2017

system utilizes an attachment to a cellular telephone that would enable consumer-based text messaging, e-mail, and “Internet of Things” communications via geostationary satellites.

Higher Ground was granted a waiver of two very important rules, as follows:

- a) Authorization of mobile operations in a Fixed Service radio frequency band; and
- b) Bypassing the required frequency coordination process

The concern is that bypassing these rules could result in interference to point-to-point microwave radio links which carry mission critical Public Safety communications.

There is nothing new to report. This item is still under consideration by the FCC.

- 2) On August 3, 2017, the FCC issued a Notice of Inquiry (NOI) for “Expanding the Flexible Use in Mid-band Spectrum Between 3.7 and 24 GHz.” This inquiry seeks comment on ways to expand opportunities for next-generation services, particularly wireless broadband services in mid-band (radio frequency) spectrum. We are considering filing comments on behalf of the City of Mesa and the TRWC on this NOI. We have been consulting with an attorney who specializes in FCC matters about joining the comments he is planning to file. While on the surface this may appear to be another assault on the radio frequency spectrum we currently utilize for point-to-point microwave radio links, we also need to consider that these next-generation wireless broadband services may provide an alternative to the conventional point-to-point microwave radio links we currently use. This may be particularly attractive if these alternatives are more cost-effective and a better value by providing additional bandwidth and reduced latency with next-generation technologies.

TRWC Administrator Update, September 14, 2017

Appendix

Fire Hazard Zone Communications Infrastructure Schedule

Milestone	Status	Date
Contract awarded to Motorola Solutions	Complete	September 28, 2015
First lease payment of \$600,000	Complete	November 12, 2015
Second lease payment of \$600,000	Complete	September 8, 2016
Third & final lease payment of \$496,164	Pending	September, 2017
Frequency acquisition	Complete	October 19, 2016
Equipment ordering	Complete	October, 2016
Equipment staging at Motorola Solutions in Illinois	Complete	December 6-7, 2016
Site preparation	Complete	January-February, 2017
Shipment of equipment from Motorola Solutions in Illinois	Complete	Week of December 12, 2016
Installation of equipment at sites	Complete	January-February, 2017
Optimization & testing of equipment	Complete	March-April, 2017
System Coverage Acceptance Testing	Complete	May, 2017
System Acceptance	Pending	October 2, 2017

Point-to-Point Microwave Radio Wireless Backhaul Lifecycle Upgrade Schedule

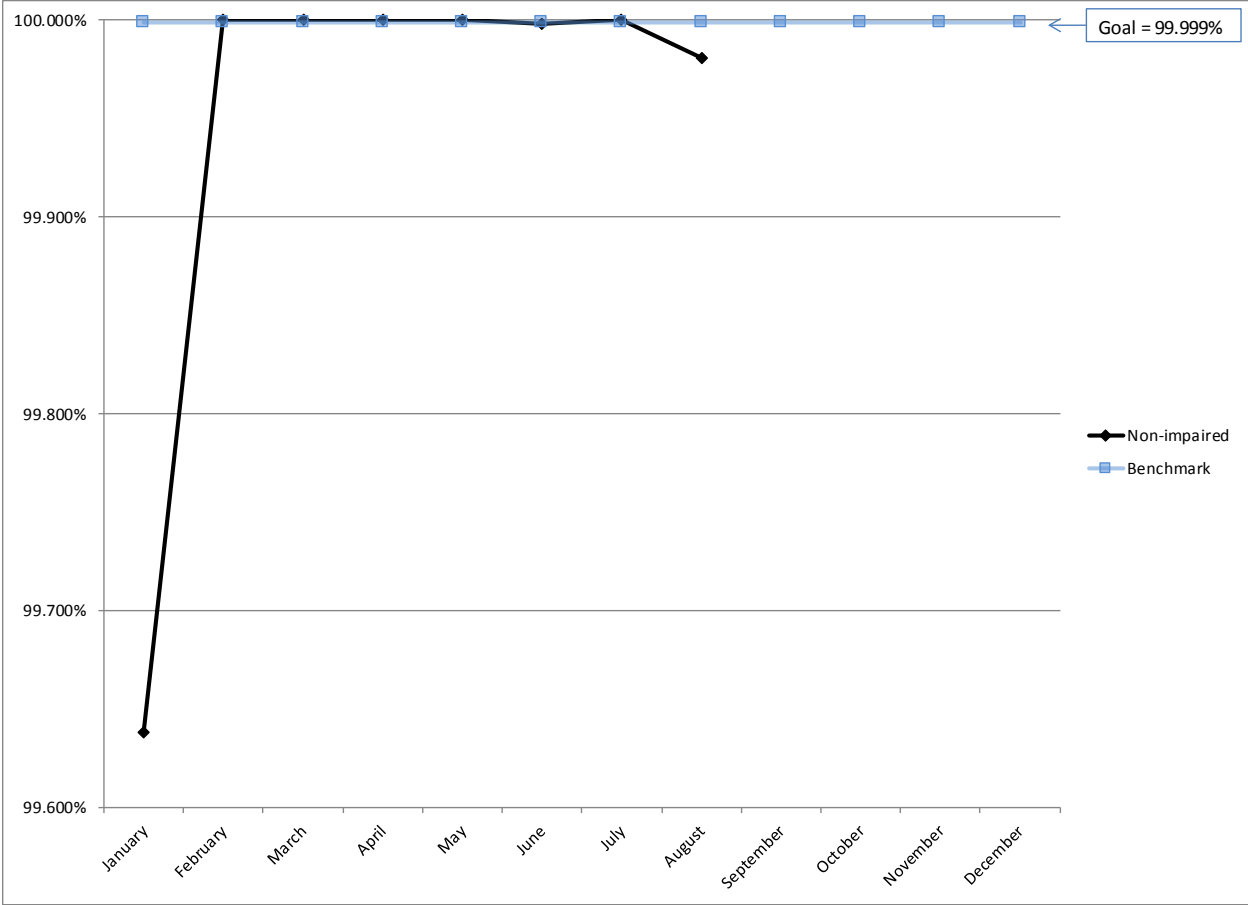
Milestone	Status	Date
Contract awarded to Aviat Networks	Complete	
Equipment received	Complete	August 14, 2017
Path equipment installation	Planned	September – December, 2017
Path equipment commissioning	Planned	September – December, 2017
Path Acceptance Testing	Planned	September – December, 2017
Project Completion	Planned	January, 2018

TRWC Administrator Update, September 14, 2017

Motorola Services Comparison

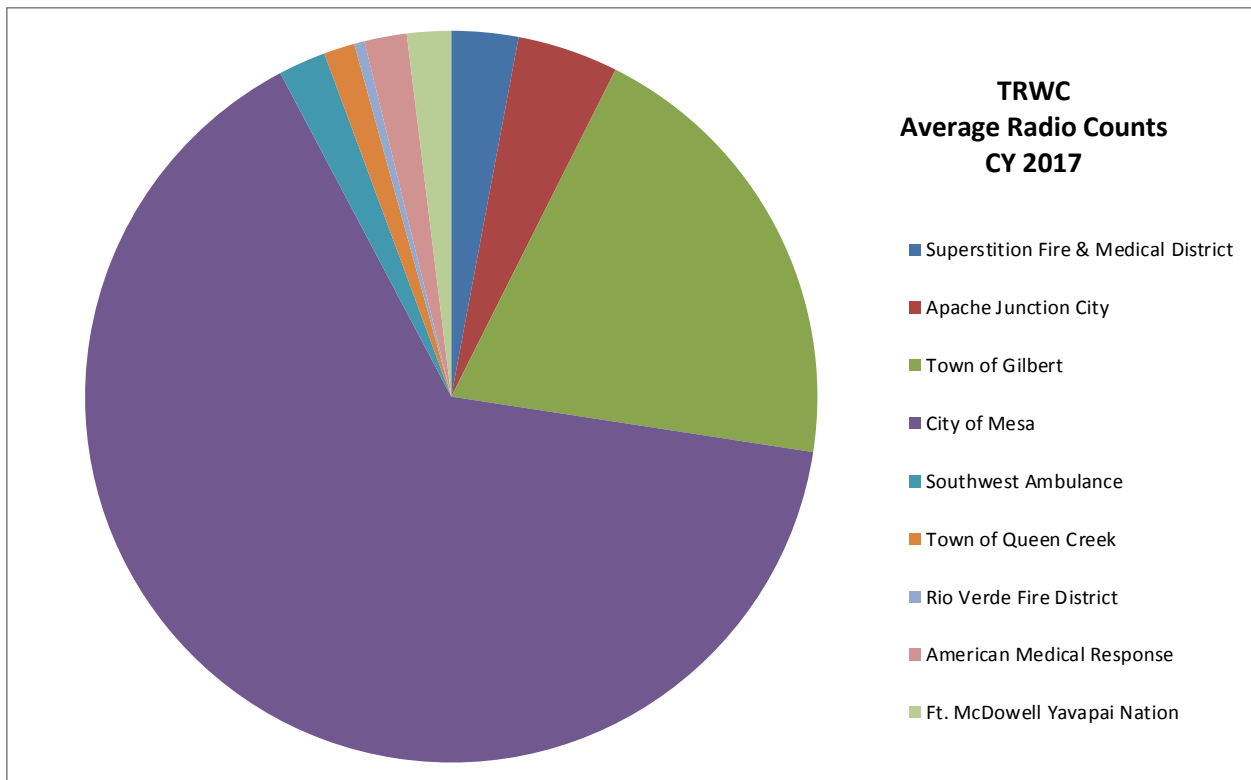
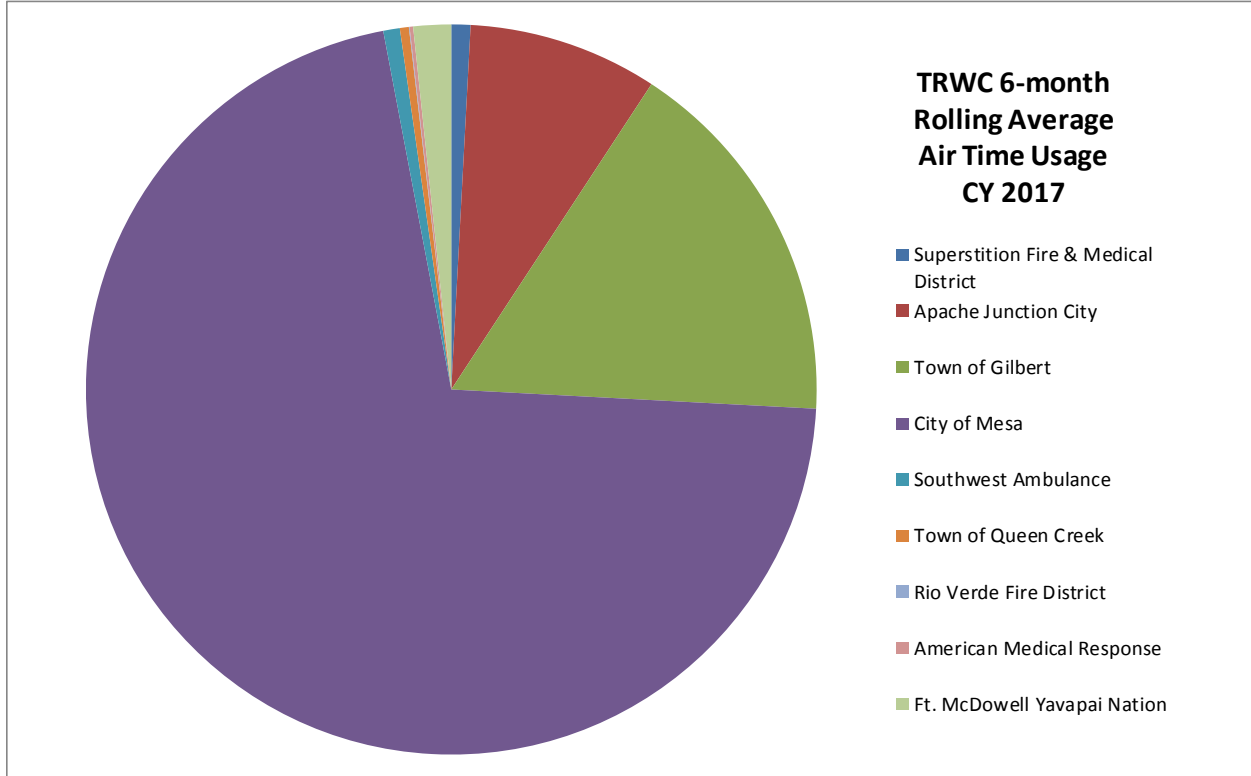
<u>7/800 MHz Services</u>	<u>Prior to 7/1/17</u>	<u>After 7/1/17</u>
<i>System Software Upgrades Every 2 Years</i>	Motorola	Motorola
<i>Core Hardware Upgrades for Master & Prime Sites and (Main & Backup)</i>	Motorola	Motorola
<i>Technical Support Service</i>	Motorola	Motorola
<i>Security Update Service</i>	Motorola	Motorola
<i>City of Mesa Console On-site Support</i>	Mesa	Motorola
<i>City of Mesa Console Technical Support</i>	Motorola ¹	Motorola
<i>City of Apache Junction Consoles On-site & Technical Support</i>	Motorola ¹	Motorola
<i>Town of Gilbert Console On-site & Technical Support</i>	Motorola ¹	Motorola
<i>Fort McDowell Yavapai Nation Console On-site & Technical Support</i>	Motorola ²	Motorola
<i>Mesa Fire & Medical Regional Dispatch Center On-site & Technical Support</i>	n/a	Motorola
<i>Security & Network Monitoring Service</i>	Mesa	Motorola
<i>Remote Security Upgrade Service</i>	Mesa ³	Motorola
<i>Dispatch Service</i>	Mesa	Motorola
<i>On-site Service (7x24, 4-hour response)</i>	Mesa ⁴	Motorola
<i>Network Preventative Maintenance</i>	Mesa ⁴	Motorola
<u><i>Fire Hazard Zone (VHF) Services (warranty effective upon acceptance, date TBD)</i></u>		
<i>System Software Upgrades Every 2 Years (effective upon acceptance)</i>	n/a	Motorola
<i>Core Hardware Upgrades (effective upon acceptance)</i>	n/a	Motorola
<i>Technical Support Service (1 year warranty, then part of service package)</i>	n/a	Motorola
<i>Dispatch Service (1 year warranty, then part of service package)</i>	n/a	Motorola
<i>On-site Service (7x24, 4-hour response) (1 year warranty, then part of service package)</i>	n/a	Motorola
<i>Network Preventative Maintenance (1 year warranty, then part of service package)</i>	n/a	Motorola
<i>Infrastructure Repair / Advance Replacement Services (1 year warranty, then part of service package)</i>	n/a	Motorola
¹ Under Separate Agreement		
² Under Warranty		
³ Applied Manually on a Quarterly Basis		
⁴ Except Apache Junction, Gilbert, and Fort McDowell Yavapai Nation Consoles		

TRWC Administrator Update, September 14, 2017

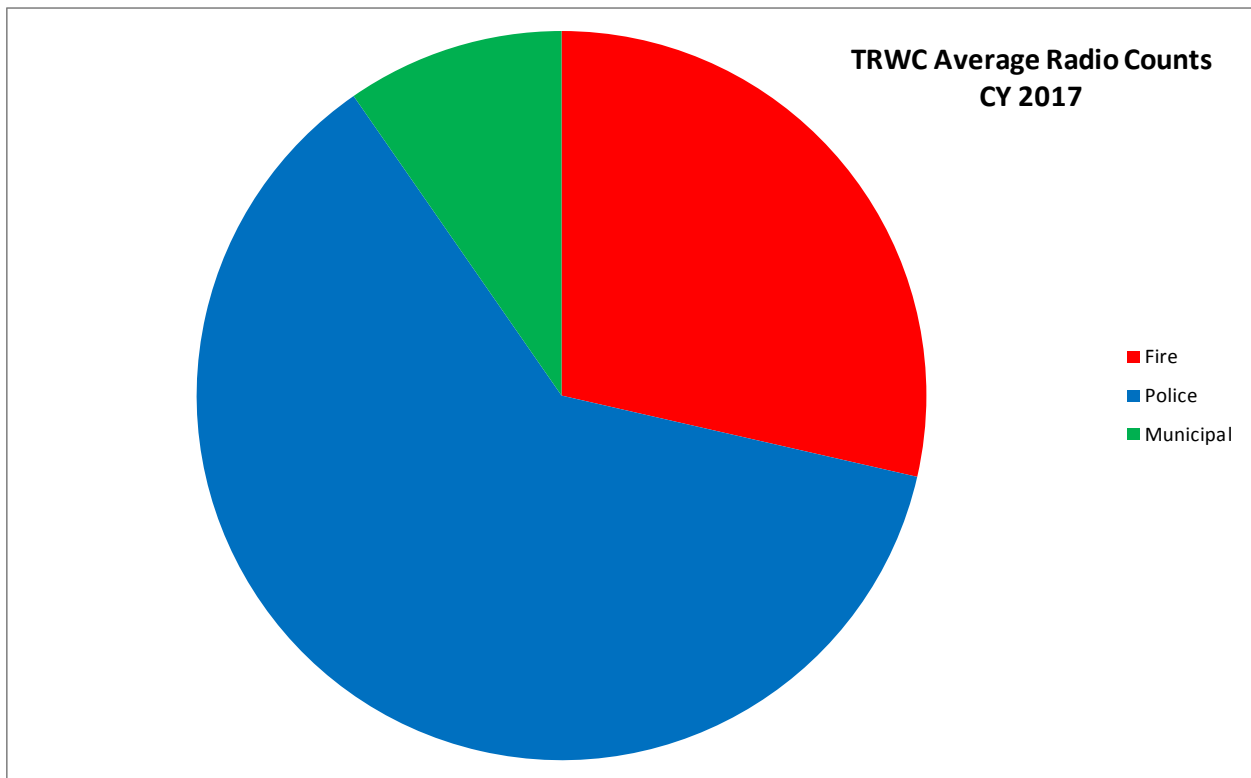
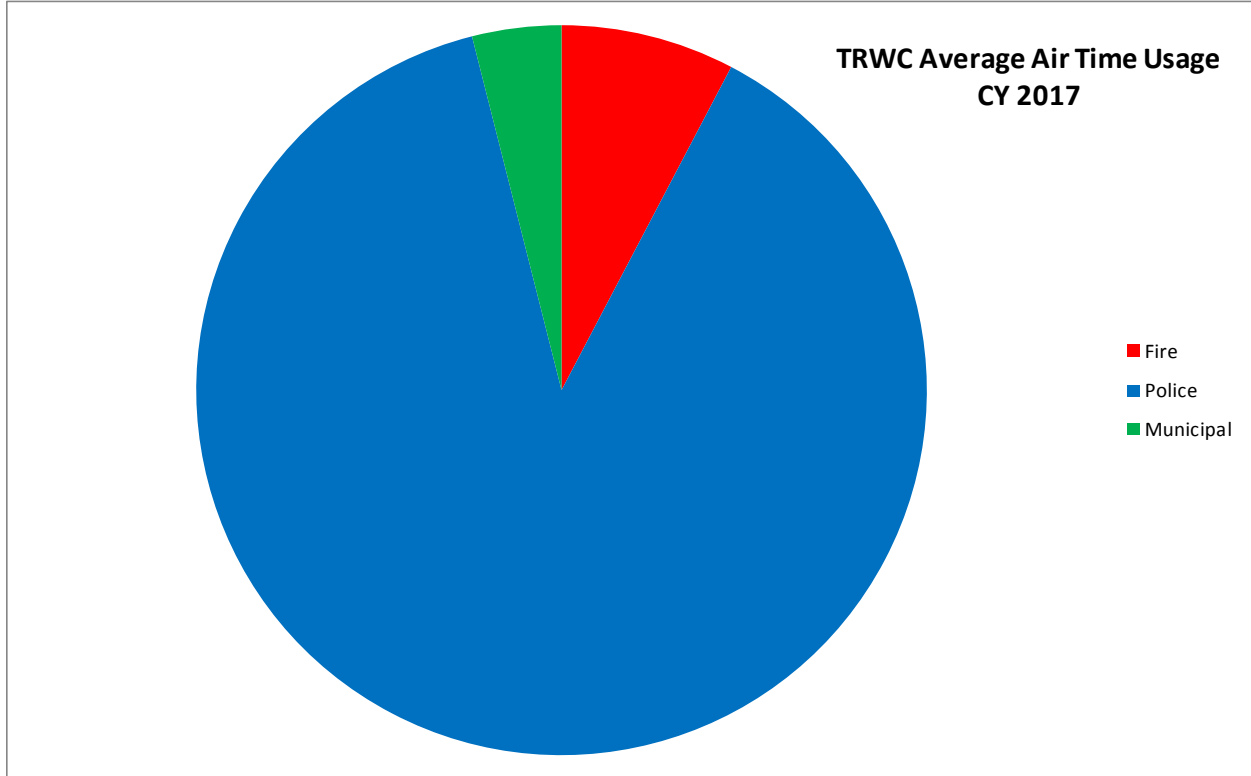


Unscheduled System Impairment, January, 2017 through August, 2017

TRWC Administrator Update, September 14, 2017

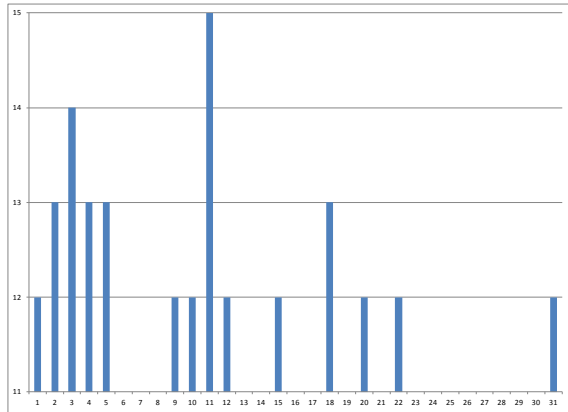


TRWC Administrator Update, September 14, 2017

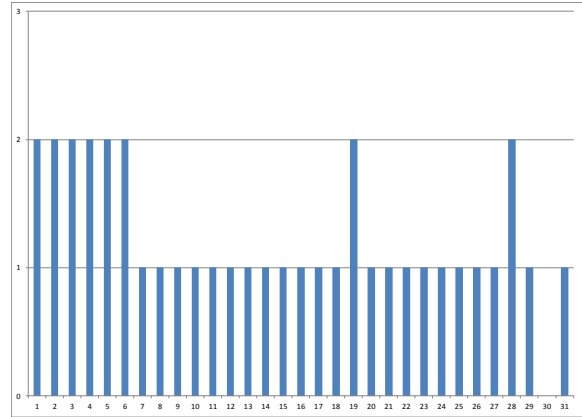


TRWC Administrator Update, September 14, 2017

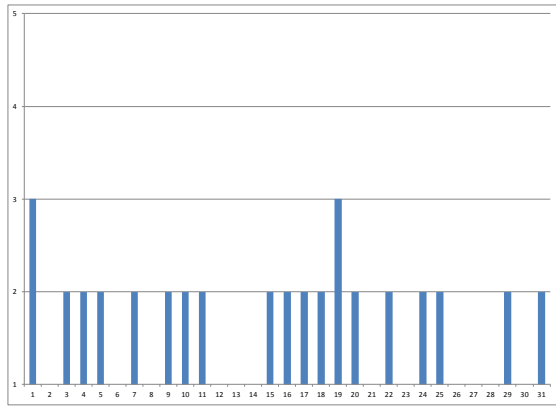
TOPAZ Peak Channel Usage, May, 2017



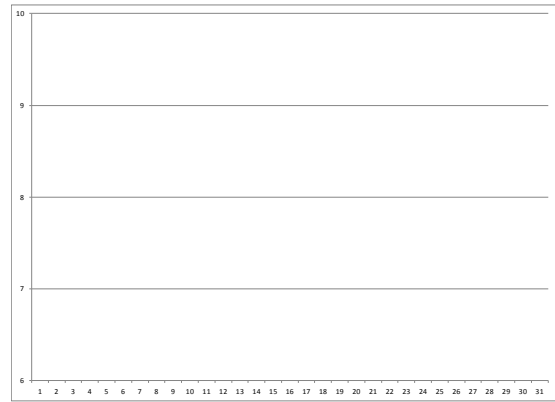
Simulcast Cell



Florence Gardens



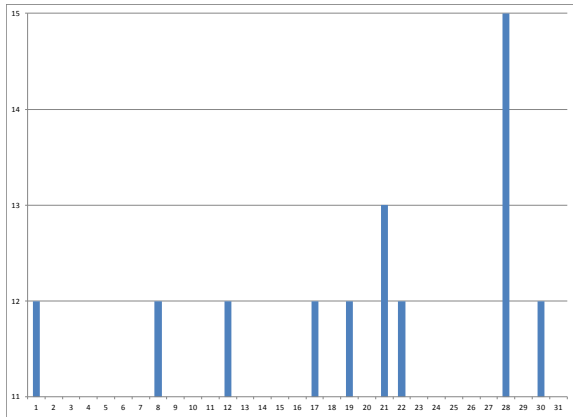
Shaw Butte



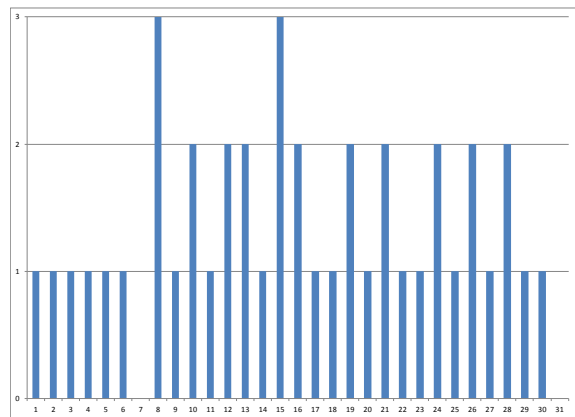
Thompson Peak

TRWC Administrator Update, September 14, 2017

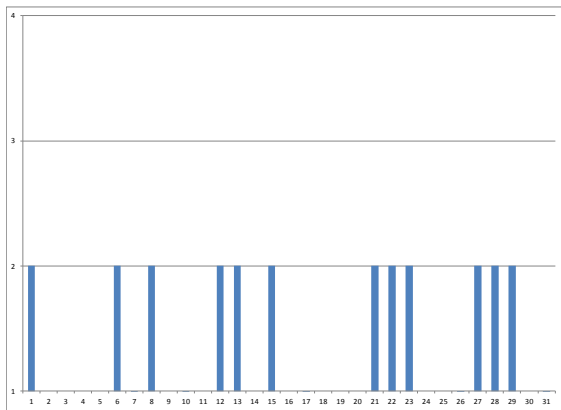
TOPAZ Peak Channel Usage, June, 2017



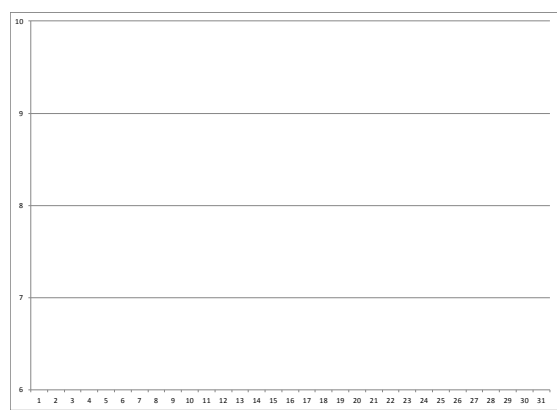
Simulcast Cell



Florence Gardens



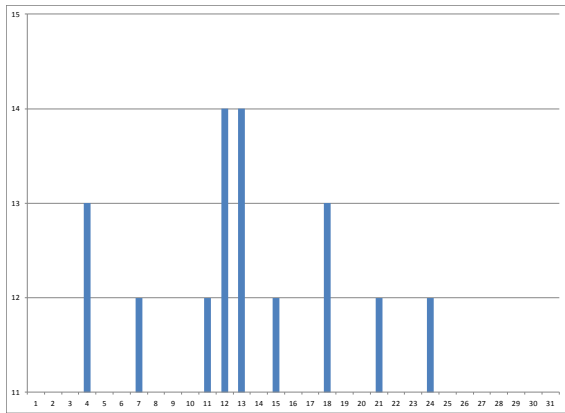
Shaw Butte



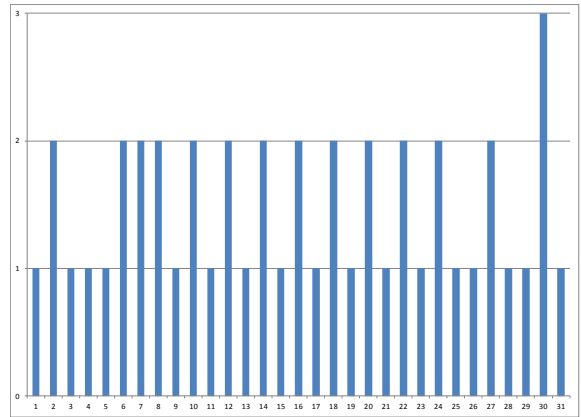
Thompson Peak

TRWC Administrator Update, September 14, 2017

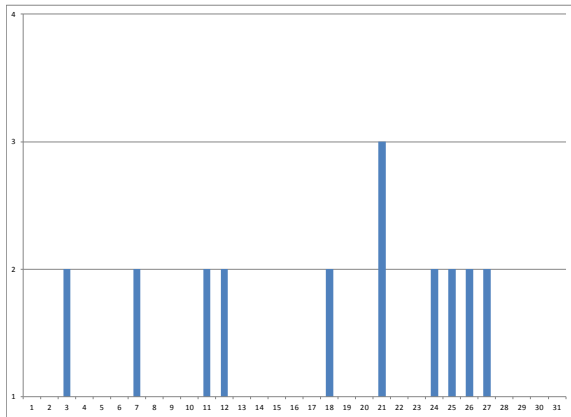
TOPAZ Peak Channel Usage, July, 2017



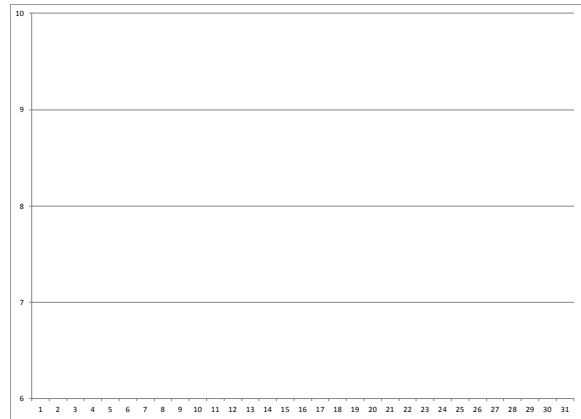
Simulcast Cell



Florence Gardens



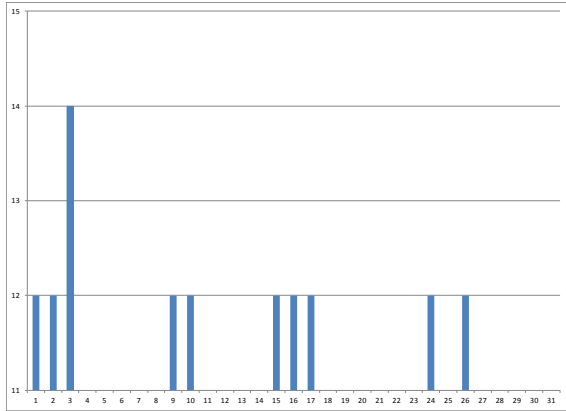
Shaw Butte



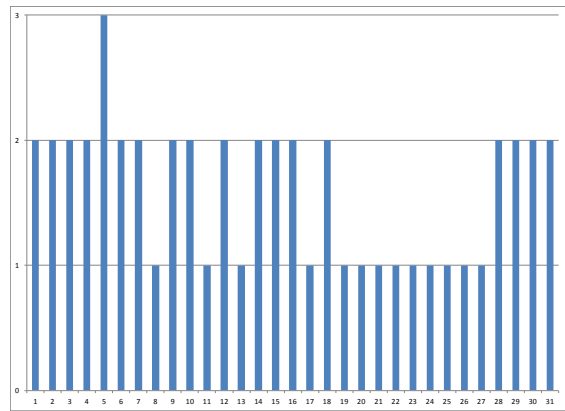
Thompson Peak

TRWC Administrator Update, September 14, 2017

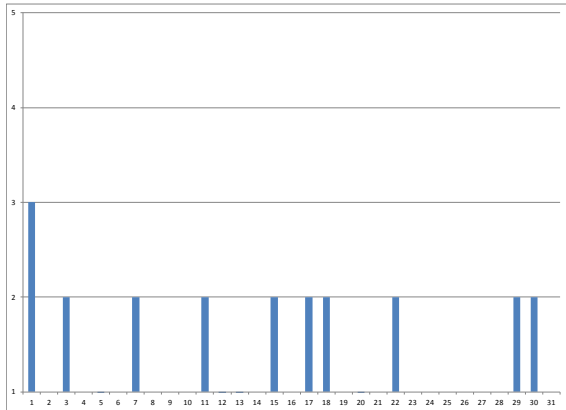
TOPAZ Peak Channel Usage, August, 2017



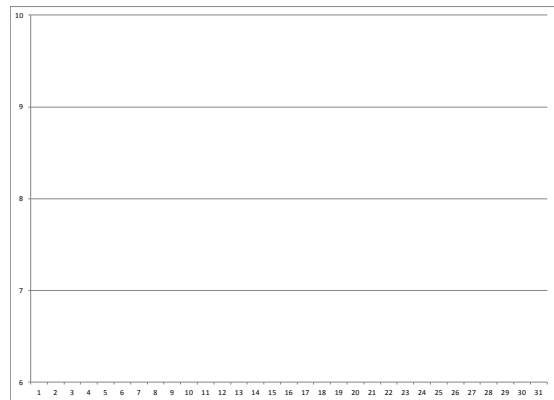
Simulcast Cell



Florence Gardens



Shaw Butte



Thompson Peak



Date: September 14, 2017
To: TOPAZ Regional Wireless Cooperative (TRWC) Board of Directors
Through: TRWC Executive Committee
Dale Shaw, TRWC Executive Director
From: Randy Thompson, Deputy Chief Information Officer, City of Mesa
Subject: Lifecycle Upgrade for Microwave Radio Network Routers
(Accelerated Capital Expenditure Item)

Purpose and Recommendation

The City of Mesa, as the Administrative Manager for the TRWC, recommends awarding a contract to Enterprise Network Solutions (ENS) and Integration Partners for \$314,684 (TRWC share) for replacement of network routers in the point-to-point microwave radio network. Because these network routers are a shared resource also carrying traffic for the City of Mesa, the cost is shared equally between the City of Mesa and the TRWC; the total contract award amount is \$629,368.

Background/Discussion

The network routers in the point-to-point microwave radio network control the flow of data in and out of the TOPAZ radio sites to ensure the data finds the fastest route to its destination and does not encounter congestion or other impairments that would delay delivery of data. In a digital voice radio system, such as TOPAZ, minimizing these delays is critical to delivering clear voice radio communications. These network routers also automatically reroute data around disruptions in the point-to-point microwave radio network to ensure clear voice radio calls.

The network routers in use today in the point-to-point microwave radio network support both TRWC critical voice communications (both 800 MHZ & Fire Hazard Zone (VHF)), critical public safety data traffic (such as Fire Station Alerting and Computer Aided Dispatch (CAD) data exchange between Mesa, Gilbert, and Phoenix), and Supervisory Control and Data

Acquisition (SCADA) traffic from water, wastewater, and natural gas utility sites. The routers are eight years old and will be out of hardware support in May, 2018. This equipment needs to be replaced due to its age, parts support, and to remain current with changing technologies and data rate requirements. If approved, the City of Mesa and its partner agencies in the TRWC will be able to take advantage of greater routing speeds, higher reliability, and increased capacity for future growth.

Alternatives

Taking no action, the network routers in the point-to-point microwave radio network would remain in service past their support life, which would reduce the reliability of the TOPAZ voice radio networks (800 MHz and VHF).

Fiscal Impact

The fiscal impact to the TRWC members is shown in the table below.

TRWC Member	Capital Allocation Percentage	Capital Cost for this Contract
City of Apache Junction	8.43%	\$26,525
Fort McDowell Yavapai Nation	1.78%	\$5,601
Town of Gilbert	16.57%	\$52,137
City of Mesa	71.95%	\$226,389
Town of Queen Creek	0.44%	\$1,384
Rio Verde Fire District	0.03%	\$94
Superstition Fire & Medical District	0.80%	\$2,517
	100.00%	\$314,648

This capital expenditure is being accelerated from the TRWC Fiscal Year (FY) 2017/2018 approved budget from its forecast in FY 19/20 (\$207,500) and FY 20/21 (\$207,500) to FY 17/18 to take advantage of cost savings offered by the vendors and funding being made available by the City of Mesa Office of Management & Budget. The original Capital Improvement Plan total was \$415,000, so the \$314,648 current contract amount is a savings of \$100,352.

Coordinated With

Coordinated with the City of Mesa Information Technology and Purchasing Departments