



TRWC Board of Directors Meeting

February 12, 2020 - 9:00 a.m.

Phoenix-Mesa Gateway Airport (PMGA)

Administration Building, Board Room

5835 S. Sossaman Road

Mesa, AZ 85212

Video Conference: <https://global.gotomeeting.com/join/634118893>

Phone: 224-501-3412, Access Code 634-118-893

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 or designee prior to the beginning of the meeting. 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. Speaker cards
- c. Audio and video recording
- d. Board representative roll-call
- e. Staffing Changes

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 promptly turn it in to the Executive Director or designee 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

4) Discussion and Action on CSSA Pinal County Member Addition – Dale Shaw

5) Discussion and Action on Network Improvements Schedule – Randy Thompson, Bob Badgett

6) Discussion and Possible Action on Network Administrator Updates

- a. Finance Update – Angie Huckaby
- b. Network Updates and Performance Overview – Randy Thompson

7) 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.

8) Retirement Recognition for Randy Thompson

(light refreshments will be served)

9) Next TRWC Board Meetings:

May 14, 2020 – Budget Adoption

All meetings are currently scheduled from 9:00 a.m. to 11:00 a.m. at PMGA.

10) Future Board of Directors Schedule

Date	Upcoming Agenda Items
5/14/20	
9/10/20	Prelim Budget Review
12/10/20	Budget Adoption

11) Adjournment



TRWC Board of Director's Meeting Minutes

September 12, 2019 - 9:00 a.m.

Phoenix-Mesa Gateway Airport (PMGA)

Administration Building, Board Room

5835 S. Sossaman Road

Mesa, AZ 85212

Video Conference: <https://global.gotomeeting.com/join/515309917>

Audio Bridge: 1-872-240-3412, Access Code 515-309-917

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 or designee prior to the beginning of the meeting. There is a time limit of three minutes for comments.

Agenda

1) Call to Order and Opening Comments

- Materials and sign-in sheet
- Speaker cards
- Audio and video recording
- Board representative roll-call
- Staffing Changes
 - a. Jared Hansen departed for new opportunity in Maricopa County
 - b. Angie Huckaby joins TRWC handling budget and finance
 - c. Cheryl Noll depart for new opportunity in Mesa Contracting Office
 - d. Gina Ross joins the TRWC handling administrative support

Chairman Kross called the meeting to order with a quorum of four, welcomed the attendees, provided instruction on the process for public comment and reminded the participants the meeting is auto recorded.

Dale Shaw covered all the staffing changes starting with the replacement for Jared Hasen, and welcoming Angie Huckaby. Gina Ross will be replacing Cheryl Noll as the new admin and Dale also mentioned and thanked Melanie Humphries for all her continued assistance with the TRWC. Chairman John Kross also thanked Melanie for her assistance and welcomed the new staff.

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 promptly turn it in to the Executive Director or designee prior to the beginning of the meeting. There is a time limit of three minutes for comments.

No public comment requests were received.

3) Discussion and Action on Board Meeting Minutes

a. Gina Ross presented an overview on locating the meeting material on the TRWC website due to some changes. Gina explained the new process of looking through the long PDF files. All files are now book marked for finding documents quickly and easily. Gina covered the instruction in finding bookmarks in File Explorer and Chrome browsers.

b. There were no questions or comments on the Board Meeting Minutes for February 21, 2019. Chief Mike Farber motioned for an approval of the minutes and Matt Busby seconded the motion. All Board members who were in favor signaled by saying aye; there was no opposition, the motion passed unanimously.

4) Discussion and Action on Chairman and Vice-Chairman Elections – Dale Shaw

Chairman John Kross began by stating that he very much appreciates serving in his role of Chairman and is happy to continue serving in this role for the TRWC. However, if anyone would like to secede him in this position, this would be acceptable and he would help in any transition. Chairman Kross then turned over the subject matter to Dale Shaw. Dale explained that he solicited for interest and nomination for both the Chair and Vice-Chair roles. He also noted to the Board that Chairman John Kross had expressed interest in continuing as Chairman if desired by the Board as well as Chief Farber in the Vice-Chair capacity. Dale had received no additional interest from any Board members along with no additional nominations. Dale announced that Chairman Kross and Chief Farber's interests stands as the only candidates to consider for these positions. Chairman Kross called for the by-laws for appointment of the Chair and Vice-Chair. Dale Shaw stated, for the Board, that this is for an additional 2-year term for both positions.

Jay Ducote motioned for Chairman John Kross and Vice-Chairman Mike Farber to continue in their roles for another two-year term. Leah Hubbard Rhineheimer second the motion. All Board members who were in favor signaled by saying aye; there was no opposition, the motion passed unanimously.

Chairman Kross thanked everyone by saying that he appreciated everyone's confidence and he looks forward to working with everyone for the next couple of years.

5) Discussion and Possible Action on System Coverage Study – Dave Brunk, Denis Murphy and Rajit Jhaver

Dale Shaw gave an introduction of the study for coverage needs for both the Trunked Radio System and VHF. Federal Engineering has assisted with this study as a contractor. Dale thanked Dave Brunk and Denis Murphy for coordinating the study. Dale introduced Rajit, from Federal Engineering, to give the Board a presentation on their findings and how the project is progressing.

Rajit presented the findings of the TRWC Radio Coverage Evaluation Project. The project objectives were to first evaluate the existing 800 MHz and VHF radio systems coverage. The second objective was to evaluate alternatives and make recommendations to enhance the coverage, and that would be the coverage within the TRWC boundaries as well as how to expand the coverage in areas of growth.

Rajit covered the existing and potential 800 MHz coverage showing a map of the current 800 MHz radio coverage. Rajit explained the potential changes and enhancement for these areas as well as areas where expansion may occur. Fire Station 205 provides no coverage enhancement. New site one will be in the vicinity of the 60 and will help cover the Peralta area and Gold Canyon area. New site two will cover the Queen Creek area as new construction is occurring. Dale Shaw wanted to reiterate that they are looking at two new sites plus some configuration changes with

some existing sites that have been identified. Rajit agreed and added the removal of one site. Rajit also explained that when replacing a site, the equipment will be reused if possible.

The existing VHF coverage. Rajit states that the intension of the VHF system is to be a portable on-street system not a portable in-building system. Southeast Apache Junction and the Queen Creek areas have growth opportunities for coverage. We are looking at an additional 7 receive only sites and an addition one transmit/receive site. The transmit/receive site is the same one on the 60 that will help provide Peralta and Gold Canyon areas.

Dale Shaw added to the end of the presentation that the budget was forecasted for these capital improvement projects and are consistent with Federal's findings.

You can locate the Slide Presentation on our Website: <http://topazrwc.org/> Meeting Materials, Attachments 9.12.19, Bookmark #5

6) Presentation, Discussion and Possible Action on FY 20/21 Preliminary Budget – Dale Shaw

Bill Anger reviewed the highlights of the open meeting law, conference call protocol and the Super-Majority procedure. The Super-Majority Vote can be found in the Second Amendment to Amended and Restated Intergovernmental Agreement 2.2.11 on our website <http://topazrwc.org/> .

Angie Huckaby reviewed the proposed 20/21 budget. Angie states that the budget is pretty much the same as 19/20. The total for Capital O&M is just over 4.5 million its. For the O&M is proposed to be about \$22,000 dollars less than last year, and it's a combination of things, a few things have gone up, legal, travel, training, but the contracts went down and software went down. The capital side picks up an extra \$70,000 due to site expansion and upgrades.

Darin Douglas, a co-chair of the Executive Committee clarified that the committee did look deep into all the areas. He supports the movement of the budget to move forward. Dale Shaw stated that he feels the plans laid out are going to meet our needs and we don't anticipate any changes from the prelim budget as we move forward with actual adoption.

Dale explained that if we don't anticipate any changes and if the Board is comfortable, we could adopt the budget today. Chairman Kross states that there is a positive recommendation from the Executive Committee and staff, he also stated that it is possible to take action today, if the board is comfortable with it. Chairman Kross then opens the discussion up for comments, discussion or questions from the members of the Board. There are no comments or questions so Chairman Kross seeks a motion to adopt the 20/21 budget. Chief Jay Ducote motions for approval and Chief Mike Farber seconds the motion. All Board members who were in favor signaled by saying aye; there was no opposition, the motion passed unanimously.

7) Discussion and Action on Communications Systems Strategic Alliance & Task Orders – Dale Shaw

Dale Shaw started by explaining what a Task Order is. TRWC entered into an IGA with RWC via our administrative managing partners Mesa and Phoenix. The IGA established the Communications Systems Strategical Alliance or CSSA for short. The CSSA provides framework for how we work together and the mechanism for us to execute the network is in a form of a task order which is essentially a contract between two organizations.

a. Task Order 1 – Motorola Support Services Contracts

Dale Shaw explains that the first task order is for Motorola Support Service Contracts. We engage

Motorola in a number of services and support contracts. We work together, us and RWC, to identify common areas, we look for economies that scale, efficiency, improvements and cost advantages in working together. The task outlines a number of opportunities. Mesa will act as a lead agency from a procurement and legal standpoint, as we prepare the materials for the RFP and contracting. We've outlined in this task order how we will staff this effort, the number of participants and where they will come from, with thorough review on both sides. No questions or comments from the Board were made.

b. Task order 2 - Subscriber Supply and Support Contracts

Dale Shaw states that task order number two is very similar, it has the same exact format, but the scope is slightly different. It relates to subscriber supply and support contract. We recognize the opportunity to pool our needs and maybe achieve some better efficiencies and pricing. We can couple it with an Associated Support Services, as well. No questions or comments from the Board were made.

c. Task order 3 - Software Licensing

Dale Shaw stated that Task Order number three, software licensing, has a number of opportunities under software licensing and there might others that we find over time. This may seem a bit open ended but it will allow us, over time, to work together to identify any opportunities for any software licensing related to the systems.

Dale Shaw concluded that these tasks, all together, constitute the bulk of our procurement efforts between our two organizations, so this is why we focused in on these areas. None of this precludes either one of us from continuing to have our independent contracts direct with our vendors or any future vendors. It also allows us to pool our resources where it makes sense to work together. No questions or comments from the Board were made.

Chairman Kross clarifies that these tasks do require approvals. Motion for consideration by Matt Busby and Chief Jay Ducote seconds the motion. All Board members who were in favor signaled by saying aye; there was no opposition, the motion passed unanimously.

d. PRCC Update

Dale Shaw recalled a past meeting discussion of an Interoperability Agreement with Pinal County which was approved. Dale stated that we are now in the final stages in terms of execution. In addition, they had been interested in CSSA to possibly become a third system participating. (The CSSA has been crafted to allow other systems to come on board) John Imig and Dale attended a meeting, at Pinal's invitation, to present on the CSSA and received good support from Pinal. Dale has just recently received an email from Jay Vargo, from Pinal County, stating that they are going through the final stages with their legal to move forward with the agreement. Dale continued stating that it looks like we are on the verge of adding a third system and when that time comes, both boards will have to act in terms of bringing them into the Strategic Alliance. No questions or comments from the Board were made.

8) Discussion and Possible Action on DOJ US Marshall Service Interoperability Request – Dale Shaw and Darin Douglass

Dale Shaw gave a brief overview. This process is to establish an agreement between TRWC and the requesting organization. It is centered around the ability for agencies within the TRWC and the other non-TRWC entities to communicate with each other when they have an event that calls for it. In this case, it is the US Marshall Service which falls under the Department of Justice. With Board approval, we would like to contract with the Department of Justice so that we can work with any agencies that fall within their jurisdiction that may require interoperability access in the future.

Darin Douglass added that this request is actually in support of a multi-agency regional task force that the US Marshall participates in. It allows them to use their own equipment instead of having to use loaner radios from other agencies while they are operating with them.

Dale reiterated that if there are any changes, as long as they are consistent with the agreement, they would not have to receive Board approval. If there are any substantial requests, we will have to come back for approval. No questions or comments from the Board were made.

Chief Mike Farber motions for approval and Matt Busby seconds the motion. All Board members who were in favor signaled by saying aye; there was no opposition, the motion passed unanimously.

9) Discussion on Communications Boilerplate Legal Language – Dale Shaw and Bill Anger

Dale Shaw had Bill Anger prepare some boilerplate legal language to provide better continuity between 3rd party agreements. Dale has asked that we put this paragraph in agreements with third parties. This is not required and is not on the agenda for action, it is just a strong suggestion and can be modified if needed. Dale states that you can add this as an amendment to the existing agreement or in the form of new agreements being established.

Bill Anger explains that the language included two concepts. One is that if a non-member is using the network, they need to enter into an interoperability agreement approved by the TRWC Board. The second part of this is if there are any conflicts between the TRWC interoperability agreement and the other communications agreements the TRWC interoperability agreement controls over any conflicting provisions in that order of agreement. No questions or comments from the Board were made.

10) Discussion and Possible Action on Network Administrator Updates

a. Finance Update – Angie Huckaby

Angie Huckaby presented a slide showing where the year ended for the fiscal year. Overall, it was 333,000.00 under budget year. The next slide she presented is where we are at for the year. Year to date we are in line with where we should be.

*You may locate these slides on our website <http://topazrwc.org/>
Meeting Materials, Attachments 9.12.19, bookmark 10a*

b. Network Updates and Performance Overview – Randy Thompson

Randy Thompson gave an overview on the Administrator Report stating that the Capital Projects in process are moving along. The System of Systems Networking is still in the testing phase. The testing is an in-depth process knowing that from prior experience it has a great effect on the acceptance or rejection of solutions. The other project in this year's budget is to obtain the licensing to connect to other P25 networks. We are currently working with DPS regarding this test connection. We are also looking at working with Pinal County to connect our networks together. Dale Shaw stated that there is potential with working with Pinal and we will have more to come after discussions with Pinal. Randy Thompson continued with the next item, radio site power upgrades. In the next few years we will be replacing the emergency generators at the older radio sites. We will be working with two sites this fiscal year. The next item is the upgrade to the antennas and transmission lines that are up on the towers for the 800 MHz network. This project is moving ahead. The last item is the capacity expansion for the Shaw Butte and Florence Garden sites. It is a limited channel capacity, and this can lead to a "system wide busy" for a particular talk group. We currently have been limiting the amount of traffic that we put on these two sites to avoid this issue. By doing a software upgrade we are able to upgrade these without adding actual

physical radio channels. Randy Thompson continued with the Operation Summary stating that we had a couple of failures that occurred at the Twin Knolls site, possibly due to lighting. We will be having someone come in and take an independent look at this. The last item in the Operation Summary is the peak channel usage. We had some conditions where all the channels on the Simulcast, the workforce of our network, were in use. We did not get any user complaints at that time and Dave Brunk solved the issue, finding that it was due to some testing that we were doing with FirstNet. He also found a way of working around the issue. No questions or comments from the Board were made.

11) Comments from the Board

Chairman John Kross gave an opportunity to the Board for comments. Chief Farber thanked the staff for their effort, commitment, dedication and for always providing excellent data and reports. Chairman John Kross also agreed with Chief Farber on the staff and is very appreciative of all the work.

Dale Shaw stated that there are some latent Executive Committee invitations that are in calendars and we are unable to update these due to some technical difficulties and they are unable to be cancelled. Please take note that if the invitation does not come from Gina Ross it is not legit. No further comments or questions on the agenda.

12) Next TRWC Board Meetings:

Chairman Kross mentioned that the December Board meeting will most likely be cancelled due to adopting the Budget during this meeting. Information regarding this decision will be sent out. All meetings are currently scheduled from 9:00 a.m. to 11:00 a.m. at PMGA

13) 2020 Board of Directors Schedule

Date	Upcoming Agenda Items
12/12/19	Possible Cancellation
3/12/20	
5/14/20	
9/10/20	Prelim Budget Review
12/10/20	Budget Adoption

14) Adjournment

Leah Hubbard motioned for adjournment and Matt Busby 2nd the motion. Meeting was adjourned at 10:20 a.m.



Date: February 12, 2020
To: Topaz Regional Wireless Cooperative (TRWC) Board of Directors
From: Dale Shaw, TRWC Executive Director
Bob Badgett, TRWC Executive Committee Co-chairman
Darin Douglass, TRWC Executive Committee Co-chairman
Subject: Pinal County CSSA Admission

Recommendation

The TRWC Executive Director and Executive Committee recommend the TRWC Board of Director's approval of the addition Pinal County as a party to the Intergovernmental Agreement (IGA) for Communications Strategic Alliance (CSSA) and associated Task Orders.

Background & Discussion

The TRWC and RWC established the CSSA in 2018 to coordinate efforts among our systems through the attached IGA. As allowed by the IGA, Pinal County has requested admission to the CSSA as a full participating party. As required, the CSSA Coordinating Council has reviewed and recommended approval of their request.

As per the CSSA IGA, two steps remain for the completion of the addition of Pinal County as a participating party in the CSSA:

- 1) The Board of Directors of the TRWC and RWC must each approve the addition.
- 2) Pinal County must complete the counterpart execution of the CSSA IGA.

Upon execution of the CSSA IGA, Pinal County may also be added as a party to any existing Task Orders of interest.

Fiscal Impact

No fiscal impact is associated with the addition of the Pinal County to the CSSA. Any future possible fiscal impacts will be defined in subsequent tasks orders that will be reviewed and approved by the TRWC Board of Directors.

When Recorded Return To:

William H. Anger

Engelman Berger, P.C.

2800 N. Central Ave., Suite 1200

Phoenix, AZ 85004

**INTERGOVERNMENTAL AGREEMENT BETWEEN PINAL COUNTY AND
THE COMMUNICATIONS SYSTEMS STRATEGIC ALLIANCE**

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; and

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

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

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

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; and

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; and

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; and

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 (either in person, by teleconference, or webcast) 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 March 5, 2018 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) twenty-four (24) months 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 give the other Parties as much advance notice as reasonably 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) calendar 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 twelve (12) months.

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 Participating 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 attorney 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 \$1,000,000 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 \$2,000,000. 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 three (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 one (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 lawsuit 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.

9.14 **Time of the Essence.** The Parties specifically agree time is of the essence of with respect to this Agreement and all provisions, obligations and conditions herein.

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 thirty (30) calendar 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 Attorney 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 fees and court costs as determined by the court.

[Signature pages to follow.]

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

PINAL COUNTY

Date: _____

By _____
Chairman, Board of Supervisors

Printed Name

ATTEST:

Clerk of Board of Supervisors

Printed Name

APPROVED AS TO FORM and within the powers and authority granted under the laws of Arizona to the County of Maricopa

County Attorney

Printed Name



Date: February 12, 2020

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

Through: Dale Shaw, TRWC Executive Director

From: Randy Thompson

Subject: TOPAZ Regional Wireless Cooperative (TRWC)
Coverage Improvement and Expansion Timeline

Background

The results and recommendations from the TOPAZ Network Engineering Study performed by Federal Engineering were presented to and discussed by the TRWC Executive Committee on October 15 and November 12, 2019. The outcome of those meetings was a prioritized timeline for network coverage improvements and expansion projects. A summary timeline is attached as Appendix A. Attached to this report as Appendix B is a description of each of these coverage improvements and expansion. Predicted radio coverage for 800 MHz and VHF for the existing TRWC network and after coverage improvement and expansion are attached as Appendix D.

Budget Impact

The timing of the coverage improvement and expansion projects has been gaited to stay within the current and forecast TRWC Capital budget. A modified version of the TRWC Capital budget with the costs for the coverage improvement and expansion projects is shown in Appendix C.

Action Requested

The TRWC Board of Directors is requested to endorse the recommendations of the TRWC Executive Committee for the timeline and scope of the proposed coverage improvement and expansion projects.

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

Appendix A: Summary Timeline

January to June, 2020 (FY20)

- ✓ Disable 800 MHz site at Mesa Fire & Medical Department station 205 (FS205)
- Receive-only VHF site at Superstition Fire & Medical District station 261 (FS261)
- Receive-only VHF site at Superstition Fire & Medical District station 263 (FS263)
- 800 MHz antenna change at the Range Rider (RAN) radio tower site
- 800 MHz antenna change (increase in height) at the TRW radio tower site
- Relocate Fire Mutual Aid base station to East Mesa Service Center tower (EMSC)

July, 2020 to June, 2021 (FY21)

- Land acquisition and initial site preparation for new coverage expansion site Queen Creek Hill

July, 2021 to June, 2022 (FY22)

- Implement new 800 MHz and VHF coverage expansion site Queen Creek Hill
- Land acquisition and initial site preparation for new coverage expansion site US60
- Receive-only VHF site at Queen Creek Fire & Medical Department station 412 (FS412)
- Receive-only VHF site at Mesa Fire & Medical Department fire station 215 (FS215), located at Phoenix Mesa Gateway Airport (PMGA)

July, 2022 to June, 2023 (FY23)

- Implement new 800 MHz and VHF coverage expansion site US60

July, 2023 to June, 2024 (FY24)

- Receive-only 800 MHz site at Mesa Fire & Medical District station 219 (FS219)
- Receive-only VHF site at the Gilbert Public Safety (GPS) building

July, 2024 to June, 2025 (FY25)

- Receive-only VHF site at Falcon Field Airport (FAL) radio tower
- Receive-only VHF site at Gilbert Fire & Rescue Department station 252

July, 2025 to June, 2026 (FY26)

- Additional VHF transmit-receive channel at the Twin Knolls (TKN) radio tower site
- Additional VHF transmit-receive channel at the Range Rider (RAN) radio tower site
- Additional VHF transmit-received channel at the South (Greenfield) Water (Reclamation) Plant (SWP) radio tower site
- Additional VHF transmit-received channel at Superstition Fire & Medical District station 262 (FS262)
- Additional VHF receive channel at Mesa Fire & Medical Department station 219 (FS219)

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

- Additional VHF receive channel at the Mesa Community College (MCC) radio tower site
- Additional VHF receive channel at Mesa Fire & Medical Department station 205 (FS205)
- Additional VHF receive channel at Superstition Fire & Medical District station 264 (FS264)
- Retune VHF transmit-receive channel at the Central Radio Site (CRS) radio tower site
- Retune VHF transmit-receive channel at the TRW radio tower site

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

Exhibit B – Description (Scope) of TRWC Coverage Expansion and Improvement Projects

This is a description of the plans for implementing the recommendations from the Federal Engineering study completed in September, 2019. The activities are arranged chronologically, and the result of the prioritization by the TOPAZ Regional Wireless Cooperative (TRWC) Executive Committee on November 12, 2019. These activities cover both the Fire Hazard Zone Communications System (“VHF”) and the TOPAZ 800 MHz Project 25 network (“800 MHz”).

Fiscal Year 2019 – 2020 (FY20)

Disabling 800 MHz @ FS205

Activity Description: the coverage predictions and actual experience indicated the 800 MHz simulcast radio site at Mesa Fire & Medical Department station 205 (FS205) does not enhance the coverage of the 800 MHz simulcast cell. The recommendation is to disable the site, enabling redeployment of the 800 MHz simulcast equipment to another site.

Antenna Change @ Range Rider

Activity Description: this is part of the TRWC Antenna & Transmission Lines Lifecycle Upgrade project. The 800 MHz simulcast antennas at the Range Rider site will be changed from an omnidirectional antenna to a directional antenna to improve coverage to the south and southwest of the site and avoid wasting coverage on the rock formation to the north northeast of the site.

Antenna Change @ TRW

Activity Description: this is part of the TRWC Antenna & Transmission Lines Lifecycle Upgrade project. The 800 MHz simulcast antennas at the TRW site will be moved from the (old) 150-foot tower to the (new) 200-foot tower. This will increase the height of both the receive and transmit antennas by about 50 feet, which should improve the coverage from the TRW site.

VHF Receive Site @ FS261

Activity Description: during the prioritization meeting held by the TRWC Executive Committee on November 12, 2019, the need for a VHF receive site in the area of Superstition Fire & Medical District (SF&MD) Fleet Services building at 1455 E 18th Ave (18th Ave & Tomahawk) in Apache Junction was identified. This site would require the construction of a (monopole) tower to support an antenna, and the construction of an equipment room to house the VHF receive site equipment.

Upon investigation of the SF&MD Fleet Services site, it was discovered the location is subject to flooding. We were also told SF&MD was planning to move the location of the Fleet Services operation. It was decided to investigate alternative locations for the site. Two likely locations were SF&MD stations 261 and 263. FS261 already has a tower from a previous VHF radio system, and an equipment room. Federal Engineering reran the coverage predictions from FS261 & FS263 and determined those two locations would cover the area being covered by the proposed site at SF&MD Fleet Services. Even though two locations will be equipped with VHF receiver equipment, it is believed the use of these locations will be equivalent to or less expensive to develop due to the existence of a tower at each location. Plans are underway to clean out the equipment room and clean off the tower at FS261.

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

VHF Receive Site @ FS263

Activity Description: during the prioritization meeting held by the TRWC Executive Committee on November 12, 2019, the need for a VHF receive site in the area of Superstition Fire & Medical District (SF&MD) Fleet Services building at 1455 E 18th Ave (18th Ave & Tomahawk) in Apache Junction was identified. This site would require the construction of a (monopole) tower to support an antenna, and the construction of an equipment room to house the VHF receive site equipment.

Upon investigation of the SF&MD Fleet Services site, it was discovered the location is subject to flooding. We were also told SF&MD was planning to move the location of the Fleet Services operation. It was decided to investigate alternative locations for the site. Two likely locations were SF&MD stations 261 and 263. FS263 already has a tower from a previous VHF radio system, and an equipment room. Federal Engineering reran the coverage predictions from FS261 & FS263 and determined those two locations would cover the area being covered by the proposed site at SF&MD Fleet Services. Even though two locations will be equipped with VHF receiver equipment, it is believed the use of these locations will be equivalent to or less expensive to develop due to the existence of a tower at each location. Plans are underway to clean out the equipment room and clean off the tower at FS263.

Move Mutual Aid to East Mesa Service Center

Activity Description: currently, Fire Mutual Aid is simulcast transmitted and has receivers at the Central Radio Site (CRS) and the TRW radio site. Due to the low usage of mutual aid, and the possible future expansion to a fifth VHF tactical channel, the most cost-effective method is to centralize the VHF Mutual Aid transmit-receive site at the East Mesa Service Center radio site (northeast of Power Road and University Drive).

Fiscal Year 2020 – 2021 (FY21)

Land Acquisition for Queen Creek Expansion Site

Activity Description: The Federal Engineering study indicated the need for a site in the Queen Creek area for both 800 MHz and VHF. The initial site location was identified as near the intersection of Coombs and Gantzel Roads, possibly at the location of new Queen Creek Fire Station 415.

Upon discussion with the Town of Queen Creek, and alternate site was identified at the Town of Queen Creek Gantzel Water Production and Storage Facility at 15668 N Gantzel Road. Further research indicated an approximately 300-foot hilltop along Gary Road south of the intersection of Hunt Highway and Gary Road would be an even better choice for a radio site. There is property for sale on that hilltop. The City of Mesa's Engineering department Real Estate section has agreed to assist with the due diligence on and acquisition of the Queen Creek Hill site. The purchase of this land is planned for no sooner than July 1, 2020, since this is when the funds are budgeted in the TRWC capital plan (FY21). Assuming availability of funds, some initial site preparation work will begin, such as grading a road and leveling of the site.

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

Fiscal Year 2021 – 2022 (FY22)

Equipment Acquisition, Installation, and Commissioning of Queen Creek Expansion Site

Activity Description: Any site preparation (construction of a road and leveling of the site) not completed in FY21 will be completed. The tower, equipment shelter, emergency generator, DC power plant and batteries, point-to-point microwave equipment, site Internet Protocol router, and VHF transmit-receive equipment will be purchased. The tower, equipment shelter, and emergency generator foundations will be constructed. Once the equipment shelter, tower and emergency generator are in place, the equipment will be installed in the equipment shelter. The 800 MHz equipment from FS205 or the Florence Gardens site will be redeployed to the Queen Creek Hill site.

Land Acquisition for US60 Expansion Site

Activity Description: The Federal Engineering study indicated the need for a site in the area about halfway between SF&MD FS264 and Florence Junction for both 800 MHz and VHF.

Some parcels of land are listed for sale in the target area. The City of Mesa's Engineering department Real Estate section has agreed to assist with the due diligence on and acquisition of the US60 site. The purchase of this land is planned for no sooner than July 1, 2021, since this is when the funds are budgeted in the TRWC capital plan (FY22).

VHF Receive Site @ FS412

Activity Description: The Federal Engineering coverage study indicated the need for a VHF receive-only site in the area near Queen Creek Fire Station 412. This site would require the construction of a tower and equipment room either within FS412 or a separate equipment enclosure and emergency generator.

Depending on the coverage from the new Queen Creek Hill site, this site may not be required.

VHF Receive Site @ FS215

Activity Description: The Federal Engineering coverage study indicated the need for a VHF receive-only site in the area near Phoenix Mesa Gateway Airport (PMGA). The initial plan is to mount a VHF antenna on the outside wall of Mesa Fire & Medical Department (MF&MD) fire station 215. There is an existing equipment room that could be used for the VHF receive equipment, and there is fiber optic cable connectivity to the City of Mesa network.

Initial contact with the PMGA indicated the mounting of an antenna on the wall of the fire station would not be an issue. However, we have now been referred to the Federal Aviation Administration, who has initially indicated the need to light the antenna even though it is not the tallest object in the area.

Fiscal Year 2022 – 2023 (FY23)

Equipment Acquisition, Installation, and Commissioning of US60 Expansion Site

Activity Description: Any site preparation not completed in FY21 will be completed. The tower, equipment shelter, emergency generator, DC power plant and batteries, point-to-point microwave equipment, site Internet Protocol router, 800 MHz (if necessary) and VHF transmit-receive equipment will be purchased. The tower, equipment shelter, and emergency generator

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

foundations will be constructed. Once the equipment shelter, tower and emergency generator are in place, the equipment will be installed in the equipment shelter. The 800 MHz equipment will either be new or redeployed simulcast equipment from FS205 if not used for the new Queen Creek Hill Site.

Fiscal Year 2023 – 2024 (FY24)

800 MHz Receive-only Site @ FS219

Activity Description: 800 MHz receive-only equipment will be purchased and installed at the radio site located adjacent to MF&MD fire station 219. An 800 MHz antenna will be installed on the existing FS219 tower. Network connectivity, DC power plant, and emergency generator power all exist at this site.

VHF Receive Site @ Gilbert Public Safety Building

Activity Description: VHF receive only equipment will be installed in an existing equipment room at the Town of Gilbert Public Safety Building (southeast of Gilbert and Warner Roads). An antenna will be installed on the roof of the building. The Gilbert Public Safety building has connectivity to the TOPAZ network.

Status: this activity has not started. This site was previously evaluated as a VHF receive site.

Fiscal Year 2024 – 2025 (FY25)

800 MHz Receive-only Site @ Falcon Field

Activity Description: VHF receive only equipment will be installed in an existing equipment shelter at the Falcon Field radio site. An antenna will be installed on the existing tower. There is existing backup power and connectivity at this site.

VHF Receive Site @ FS252

Activity Description: VHF receive only equipment will be installed at a to be determined location at the Town of Gilbert fire station 252. An antenna may be installed on one of the cellular towers located at the site. FS252 has connectivity to the Town of Gilbert network which would enable connectivity to the TOPAZ network.

Status: this activity has not started other than an initial feasibility assessment. Gilbert does not have exclusive access to the top of the cellular towers located at the site. Getting transmission line from the tower to the fire station may be difficult.

Fiscal Year 2025 – 2026 (FY26)

Capacity Expansion at Existing VHF Transmit-Receive Sites

Activity Description: A capacity expansion to a 5th tactical VHF channel would be implemented at the following sites:

- Twin Knolls (TKN)
- Range Rider (RAN)
- South (Greenfield) Water Plant (SWP)
- FS262

Capacity Expansion at Existing VHF Receive-only Sites

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

Activity Description: A capacity expansion to a 5th tactical VHF channel would be implemented at the following sites:

- FS219
- Mesa Community College (MCC)
- FS205
- FS264

Retuning at Existing VHF Transmit-Receive Sites

Activity Description: The following sites are already 5-channel transmit-receive sites, and would only require retuning to accommodate a 5th tactical VHF channel:

- Central Radio Site (CRS)
- TRW

TRWC Coverage Improvement and Expansion Timeline, February 12, 2020

Appendix C – TRWC Coverage Improvement and Expansion Budget

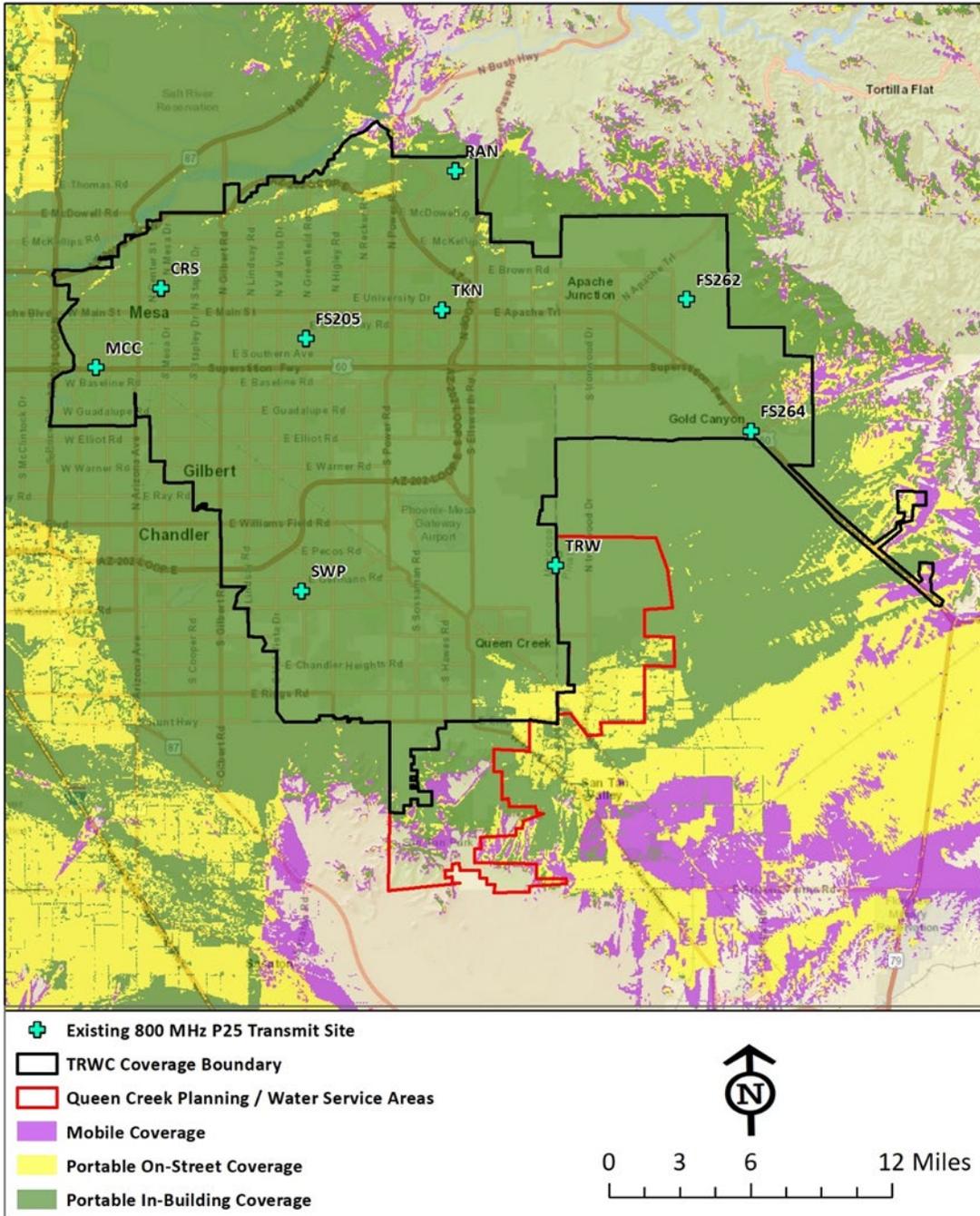
TRWC Budget	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	Total
VHF Special Assessment	\$371,700	\$470,572	\$487,051	\$371,700	\$371,700	\$371,700	\$371,700	\$2,816,123
VHF Lifecycle	\$0	\$98,872	\$115,351	\$0	\$0	\$0	\$0	\$214,223
VHF Coverage Improvement & Expansion	\$371,700	\$371,700	\$371,700	\$371,700	\$371,700	\$371,700	\$371,700	\$2,601,900
Prioritized VHF Coverage Improvement & Expansion	\$370,000	\$0	\$740,000	\$370,000	\$185,000	\$370,000	\$420,000	\$2,455,000
Under/(Over)	\$1,700	\$371,700	-\$368,300	\$1,700	\$186,700	\$1,700	-\$48,300	\$146,900
Capital (Not VHF)	\$1,659,914	\$1,451,469	\$1,964,210	\$2,158,515	\$1,313,980	\$238,698	\$71,433	\$8,858,219
Lifecycle (Not VHF)	\$342,200	\$342,200	\$138,110	\$291,165	\$273,465	\$238,698	\$71,433	\$1,697,271
Other Capital (Not VHF)	\$1,117,714	\$535,206	\$247,800	\$247,800	\$0	\$0	\$0	\$2,148,520
Coverage Improvement & Expansion (Not VHF)	\$200,000	\$574,063	\$1,578,300	\$1,619,550	\$1,040,515	\$0	\$0	\$5,012,428
Total Prioritized Coverage Improvement & Expansion (Not VHF)	\$0	\$574,063	\$1,578,300	\$1,013,847	\$325,000	\$0	\$0	\$3,491,210
Under/(Over)	\$200,000	\$0	\$0	\$605,703	\$715,515	\$0	\$0	\$1,521,218
Net Under/Over	\$201,700	\$371,700	-\$368,300	\$607,403	\$902,215	\$1,700	-\$48,300	\$1,668,118

APPENDIX D – Coverage Maps

Existing TRWC 800 MHz Predicted Coverage

City of Mesa, AZ TRWC - Existing 800 MHz Coverage

800 MHz P25 Simulcast Coverage > DAQ 3.4; Talk-Out (site to radio); 95% Reliability

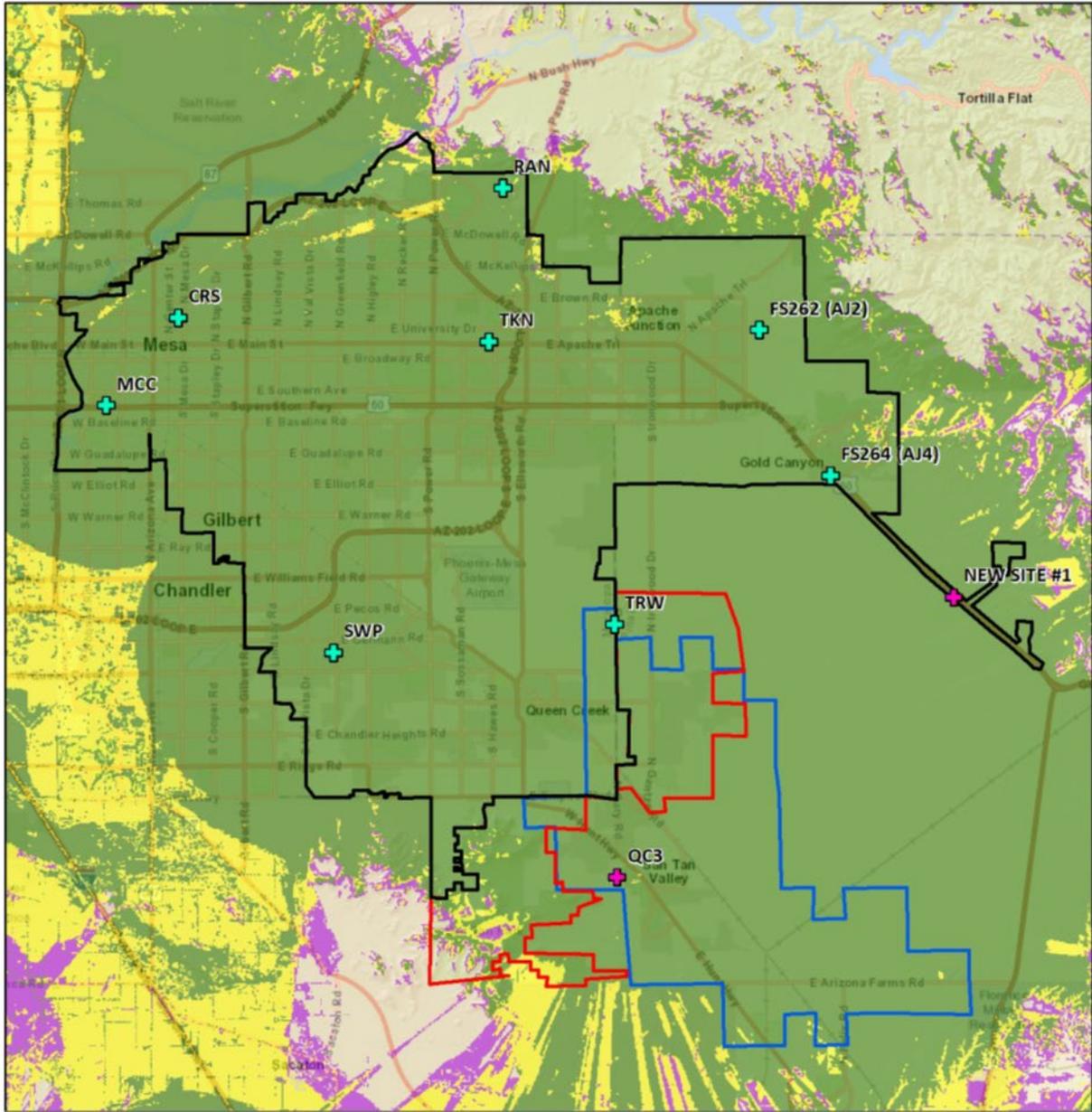


Predicted TRWC 800 MHz Coverage After Coverage Improvement and Expansion

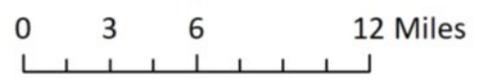
City of Mesa, AZ TRWC - Potential 800 MHz (Revised-QC3@100')



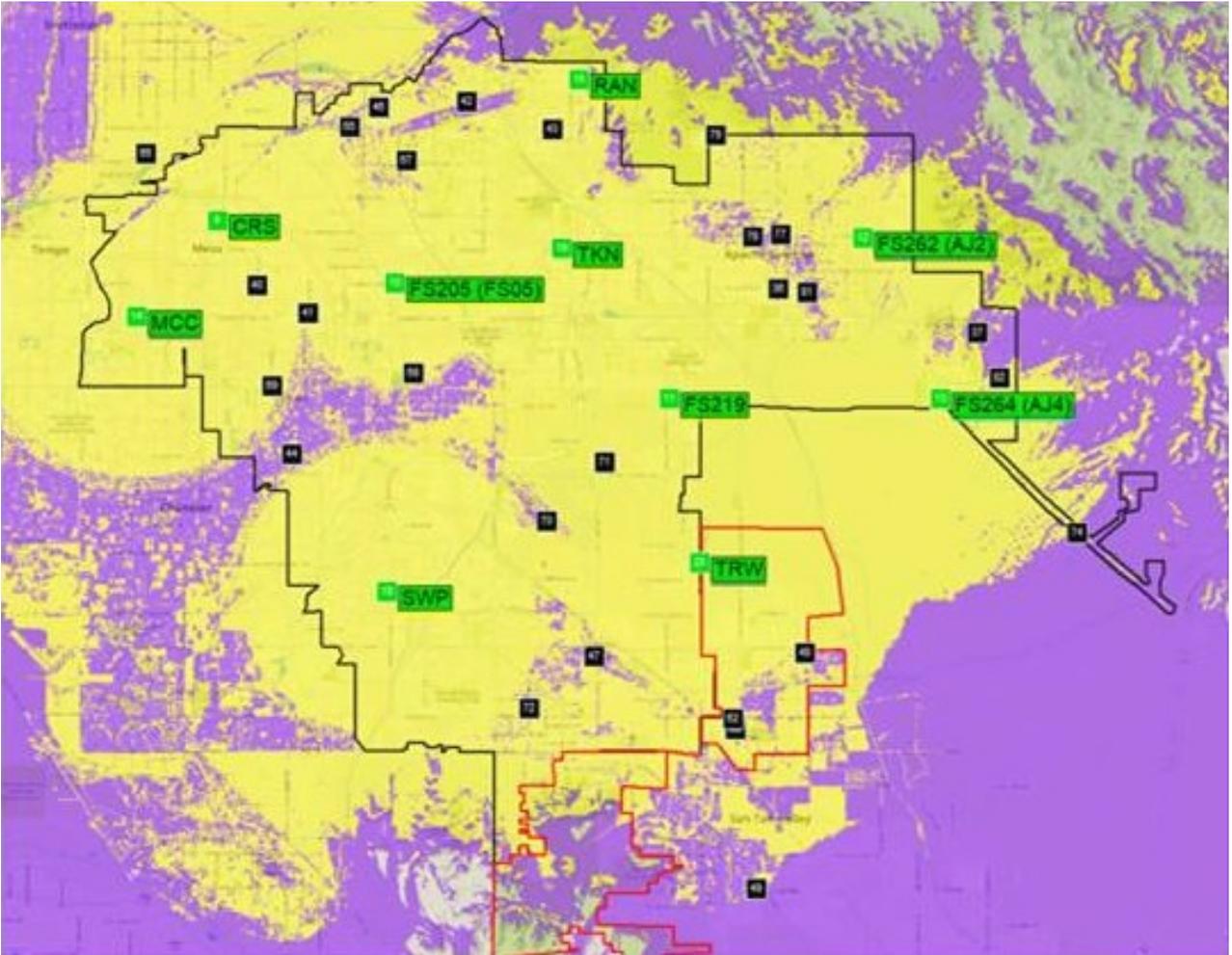
800 MHz P25 Simulcast Coverage > DAQ 3.4; Talk-Out (tower to radio); 95% Reliability



- + Existing TX/RX Site
- + Candidate TX/RX Site
- TRWC Coverage Boundary
- Queen Creek Planning / Water Service Areas
- Mesa Magma Gas Service Area
- Mobile Coverage
- Portable On-Street Coverage
- Portable In-Building Coverage



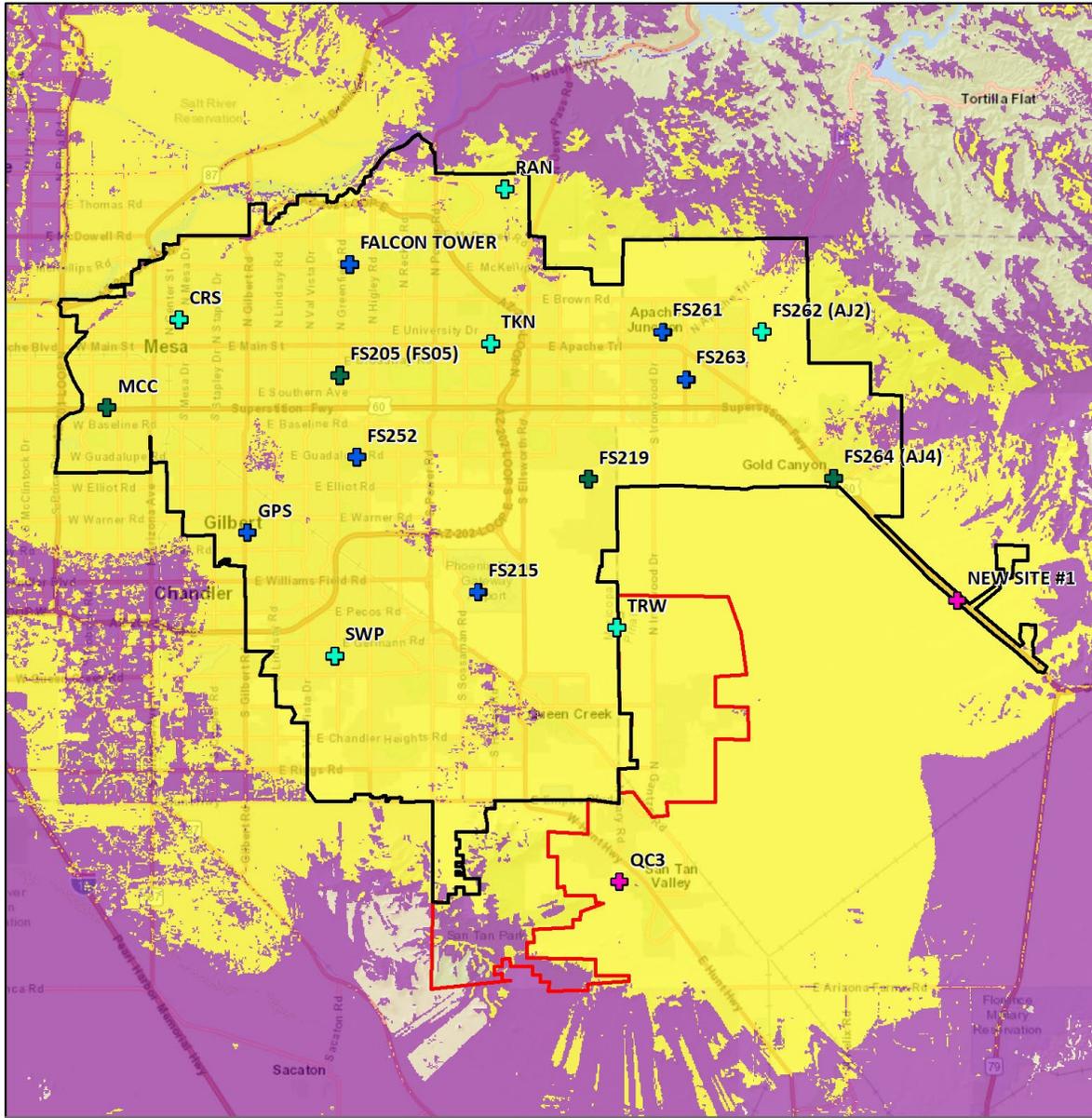
Existing TRWC VHF Predicted Coverage



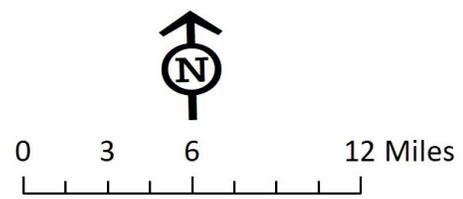
Predicted TRWC VHF Coverage After Coverage Improvement & Expansion

City of Mesa, AZ TRWC - Potential VHF Coverage (Revised-QC3@100')

VHF Analog Simulcast Coverage > DAQ 3.4; Talk-In (radio to site); 95% Reliability



- Existing TX/RX Site
- Existing RX-Only Site
- Candidate TX/RX Site
- Candidate RX-Only Site
- TRWC Coverage Boundary
- Queen Creek Planning / Water Service Areas
- Mobile Coverage
- Portable On-Street Coverage



TOPAZ
Detail of Operating and Maintenance
Fiscal Year 2019 / 2020

7 Number of Months
15 Number of Payroll Periods to Date

Year to Date Through January 31, 2020

Description	Budget	Updated Forecast	YTD Forecast*	YTD Actual	\$ Var % Var From YTD Forecast		Comments
					Incr/(Decr)		
Personnel Services	\$ 418,340	\$ 370,081	\$ 213,508	\$ 213,508	\$ 0	0%	payroll and fixed benefit allocation
Insurance Premiums	8,500	8,500	4,958	-	(4,958)	-100%	
Legal Services	37,000	37,000	21,583	4,902	(16,681)	-77%	
Temp Services	6,000	6,000	3,500	-	(3,500)	-100%	
Leases and Rents - Land	25,300	25,300	14,758	8,400	(6,358)	-43%	
Professional Services - Consulting	88,500	88,500	51,625	60,003	8,378	16%	** See below
Professional Services - Other	15,000	15,000	8,750	26,745	17,995	206%	Federal Engineering Coverage Workshop
Utilities	60,000	60,000	35,000	30,440	(4,560)	-13%	
Telephone	3,400	3,400	1,983	2,797	814	41%	Past Due of \$693 pd 11/2019
Repairs & Maintenance	31,000	31,000	18,083	-	(18,083)	-100%	
Equipment Usage (Vehicles)	20,000	20,000	11,667	10,089	(1,578)	-14%	
All Other Services	-	-	-	-	-	0%	
Sub-total Services	294,700	294,700	171,907	143,376	(28,531)	-17%	
Motorola Contract	957,200	957,200	558,367	869,166	310,799	56%	Motorola yearly contract pd in full 8/2019
Juniper Software	22,500	22,500	13,125	-	(13,125)	-100%	
Materials & Parts	20,460	20,460	11,935	22,499	10,564	89%	RFI Meander collinear & shipping \$11,818
Non Cap Assets	25,000	25,000	14,583	-	(14,583)	-100%	
All Other Commodities	-	-	-	-	-	0%	
Sub-total Commodities	1,025,160	1,025,160	598,010	891,665	293,655	49%	
Subtotal O&M	1,738,200	1,689,941	983,425	1,248,549	265,124	27%	
Contingency - 5% of total O&M	51,321	51,321	29,937	-	(29,937)	-100%	
VHF Operations	120,138	120,138	70,081	-	(70,081)	-100%	
Total	\$ 1,909,659	\$ 1,861,400	\$ 1,083,443	\$ 1,248,549	\$ 165,106	15%	

*YTD Forecast represents 7 months of operational costs plus any contractual expenses already incurred (i.e. one time payments such as Insurance Premiums, Land Rental and Motorola Contract).

** Phoenix Drone Service for Tower Sites \$3,750, NGH Power Systems Battery Maintenance \$4,200, Alcacell OMNI Swap \$1,250



Date: February 12, 2020
To: TOPAZ Regional Wireless Cooperative (TRWC) Board of Directors
Through: Dale Shaw, TRWC Executive Director
From: Randy Thompson
Subject: Administrator Update

Capital Projects

1) Fiscal Year 2020 Capital Projects (approved in Fiscal Year 2019-2020 TRWC Capital Budget)

- a. System-of-Systems Networking Expansion.** This project will enable the expansion of the networking of the TRWC to other Project 25 radio networks, the First Responder Network Authority (FirstNet built by AT&T), or other push-to-talk providers to enable “roaming” between systems to expand radio coverage without building additional radio sites.

Unfortunately, the testing with FirstNet built with AT&T has not gone well. As we moved into a pilot phase with the Mesa Police and Fire & Medical Departments, we encountered difficulties with both managing subscribers in different accounts and with provisioning talkgroups through the tools provided by AT&T. After spending many, many hours working with AT&T to resolve these issues, it became clear that we were not going to be able to make the system-of-systems networking connection through the TRWC Inter Sub-Site Interface (ISSI) function with the proprietary cellular push-to-talk solution AT&T was offering.

We have disconnected the connection from the TRWC network to the AT&T data center and have stopped working on the current cellular push-to-talk to the TRWC’s P25 system offered by AT&T. This saves the TRWC about \$1,100 per month in cost for the connection to AT&T’s data center and for test cellular handsets. AT&T has announced a standards-based cellular push-to-talk solution that appears promising and appears to solve the latency issues present with the previous solution. However, the ability to interface to the TRWC network in a direct connection manner appears to be at least a year in the future.

We will not be expending the budgeted funds for system-of-systems networking until the appropriate agreements are in place with other P25 networks or cellular carriers.

- b. Radio Sites Emergency Power Upgrade.** This is a plan for lifecycle replacement of the emergency generators at the TOPAZ radio sites.
- i. Falcon Field Airport replaced November 25, 2019
 - ii. Range Rider scheduled for replacement February 20, 2019
 - iii. Shaw Butte planned for replacement March, 2020
 - iv. Mesa Community College planned for replacement 1st quarter fiscal year 2020-2021

TRWC Administrator Update, February 12, 2020

- v. East Mesa Service Center planned for replacement 2nd quarter fiscal year 2020-2021
 - vi. Fire Station 205 planned for replacement 3rd quarter fiscal year 2020-2021
 - vii. South (Greenfield) Water Plant planned for replacement 1st quarter fiscal year 2021-2022
 - viii. Fire Station 219 planned for replacement 2nd quarter fiscal year 2021-2022
 - ix. Central Radio Site planned for replacement 3rd quarter fiscal year 2021-2022
- c. Antenna & Transmission Lines Lifecycle Upgrade.** The antennas and the transmission lines that connect the antennas to the base stations at the TOPAZ radio sites are over 16 years old, so we need to replace them before they fail. This a two-year plan. This project is just starting and is planned to be finished in September, 2020.
- d. Capacity Expansion for Shaw Butte and Florence Gardens.** The channels (talkgroups) made available at the Shaw Butte and Florence Gardens sites have been limited due to concerns about capacity. Rather than add physical radio channels, the Shaw Butte and Florence Gardens sites will be converted to Project 25 Phase II, which doubles the voice carrying capacity of the site without adding physical radio channels. This project is just starting and is planned to be finished in September, 2020.
- e. TOPAZ Network Engineering Study.** This engineering study evaluated the current TOPAZ networks (7/800 MHz P25 and the Fire Hazard Zone Communications System (VHF)) to determine the following:
- i. Are current site locations optimal for the current radio coverage area criteria
 - ii. Are the current antennas appropriate to meet the system radio coverage objectives (this is related to item “c” above).
 - iii. An ordered list of areas requiring new sites to provide or improve radio coverage in the future (this is related to the TRWC Capital Budget Plan)
- Federal Engineering was awarded a \$69,508 contract for this work which began July 15, 2019 and was completed in September, 2019. The study met the objectives outlined above, and provided actionable recommendations to improve the TRWC’s coverage for both P25 and VHF in the current coverage area, and identified approximate locations for additional sites in areas where TRWC members coverage needs are extending outside of the current coverage area. Federal Engineering reported their preliminary findings at the September 12, 2019 TRWC Board of Directors meeting.
- It is important to bring to the attention of the TRWC Board of Directors how pleased we were with the performance of this study and by the report issued by Federal Engineering.
- f. TOPAZ Network Coverage Improvement and Expansion.** Working with the TRWC Executive Committee, the recommendations from the TOPAZ Network Engineering Study were discussed and prioritized into an action plan to improve and expand the coverage of the existing 800 MHz and Fire Hazard Zone (VHF) systems. The results of this work are presented in a separate document. The projects for the current (FY20) and next (FY21) fiscal years are as follows:
- i. FY20: Disable the TOPAZ 800 MHz site at Mesa Fire & Medical Department station 205 (FS205).

TRWC Administrator Update, February 12, 2020

1. The Federal Engineering study confirmed the observation by staff that the site at FS205 contributed little to the TRWC coverage. The site was disabled on January 6, 2020. There have been no reports of coverage degradation or impairment as a result of this action. The 800 MHz equipment at FS205 will be redeployed to one of the TOPAZ coverage expansion sites (probably the US60 site). The VHF receive site at FS205 remains in service.
- ii. FY20: VHF Receive-only site at Superstition Fire & Medical District station 261.
 1. Work has already begun on this project. Contract for equipment with Motorola Solutions was approved by the Mesa City Council on January 27, 2020. Contract will be sent to Motorola upon endorsement by the TRWC Board of Directors of the timeline and plan for improving and expanding the coverage of the TRWC.
- iii. FY20: VHF Receive-only site at Superstition Fire & Medical District station 263.
 1. Work has already begun on this project. Contract for equipment with Motorola Solutions was approved by the Mesa City Council on January 27, 2020. Contract will be sent to Motorola upon endorsement by the TRWC Board of Directors of the timeline and plan for improving and expanding the coverage of the TRWC.
- iv. FY20: Relocate Fire Mutual Aid to East Mesa Service Center tower.
 1. The new radio site equipment is being purchased in a 5-channel configuration, even though the TRWC only has 4 VHF tactical channels plus Fire Mutual Aid licensed and operational at this time. For this reason, the mutual aid channel base station is being moved to the East Mesa Service Center tower location. The costs will only be a new antenna, transmission line, and tower services. An existing equipment will be used for the Fire Mutual Aid radio base station.
- v. FY21: Land acquisition for the new “Queen Creek Hill” radio site.
 1. A potential site location has been identified and preliminary work through the City of Mesa Engineering Department’s Real Estate group has begun.

Operations Summary

Unscheduled Impairments – Please see the unscheduled impairments graph on page 4. Since the last Administrator update on September 12, 2019, the unimpaired system availability has been as follows:

Period	Unimpaired System Availability	Comments
September, 2019	100%	
October, 2019	100%	
November, 2019	99.794%	11/21/19: Twin Knolls out of service 1:29:03 due to equipment failure (LNA).
December, 2019	100%	
January, 2020	100%	
Calendar Year 2019	99.925%	Goal 99.999%
Fiscal Year 2020	99.923%	Goal 99.999%

TRWC Administrator Update, February 12, 2020

The cause of the Low Noise Amplifier (LNA) failures at the Twin Knolls site is unknown. An inspection of the site by City of Mesa personnel revealed a grounding configuration that could explain the LNA failures at the site. The grounding configuration has been changed to mitigate the potential source of the LNA failures.

Airtime and Radio Counts – the following charts are included:

- 1) Six month rolling average airtime usage by member for fiscal year 2019 through January, 2020.
- 2) Average number of radios enabled by member for fiscal year 2019 through January, 2020.
- 3) Six month rolling average airtime usage by service type for fiscal year 2019 through January, 2020.
- 4) Average number of radios enabled by service type for fiscal year 2019 through January, 2020.

Peak Channel Usage – the following charts are included:

- 1) Peak channel usage for each site for September, 2019 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:

Period	Simulcast Cell	Florence Gardens	Shaw Butte	Thompson Peak
September, 2019	0	0	0	0
October, 2019	1	0	0	0
November, 2019	0	0	0	0
December, 2019	0	0	0	0
January, 2020	0	0	0	0

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

Other Operational Events:

- 1) The TOPAZ 7/800 MHz network core was upgraded to system release to 7.18 between September 30 – October 10, 2019. The upgrade generally went well, although there were some issues with the Key Management Facility (KMF) which manages encryption, some other peripheral devices, and with the reports we use for the airtime billing for the TRWC members. Motorola Solutions has now resolved KMF and peripheral device issues, and a patch is forthcoming for the reporting problem. The costs for this upgrade were covered by the System Upgrade Assurance II (SUA II) contract.

And in the spirit of transparency, the KMF problems were found to be partly due to a network transport problem, which has also been fixed. Motorola Solutions did not request any additional payment for troubleshooting this problem, even though the network transport problem was a City of Mesa issue.

Upcoming Events:

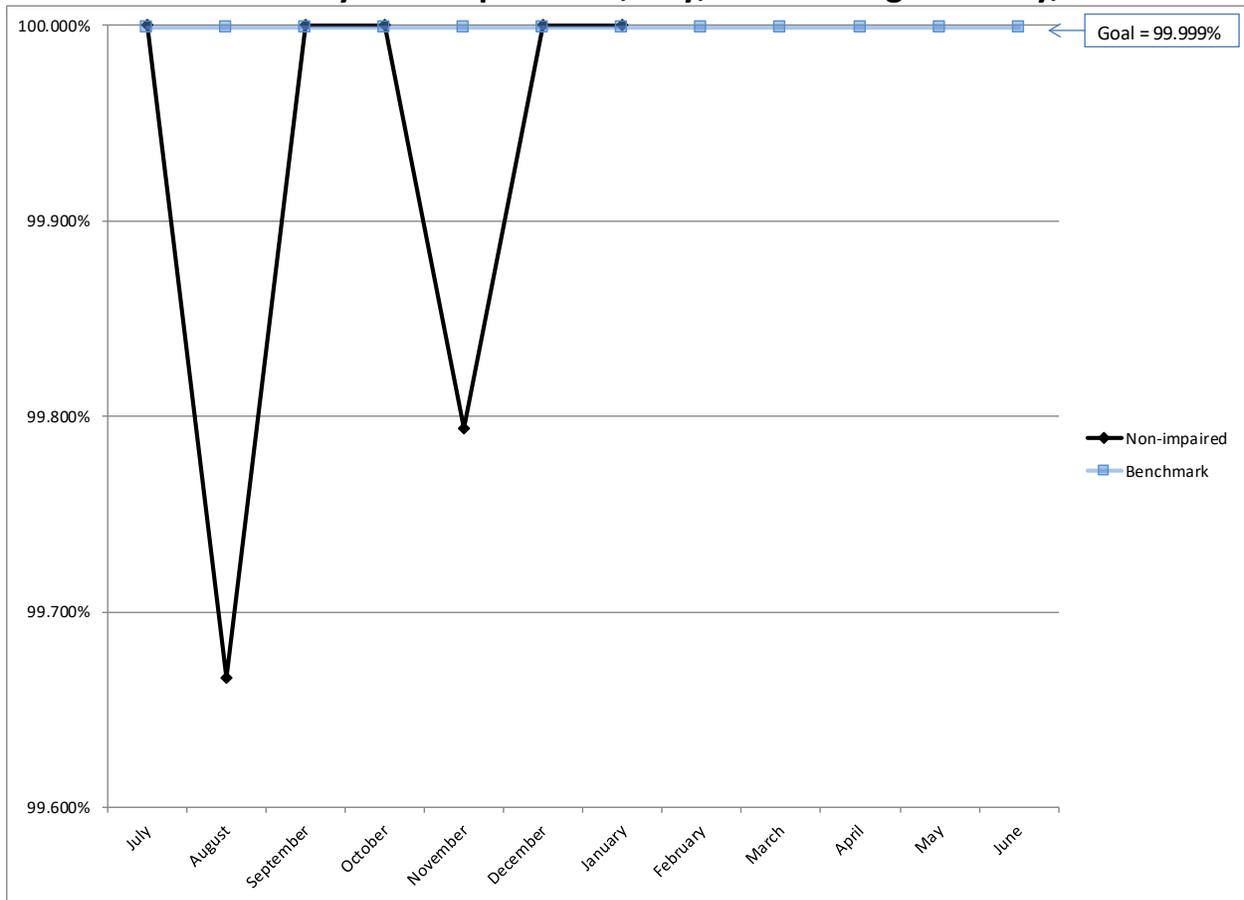
TRWC Administrator Update, February 12, 2020

- 1) As part of the upgrade of the TOPAZ network to system release 7.18, the radio dispatch console personal computer hardware is being upgraded. As of the writing of this report, this work is on hold due to a software defect discovered by Motorola Solutions. The cost for this up hardware and software upgrade is covered by the Motorola Solutions SUA II contract.

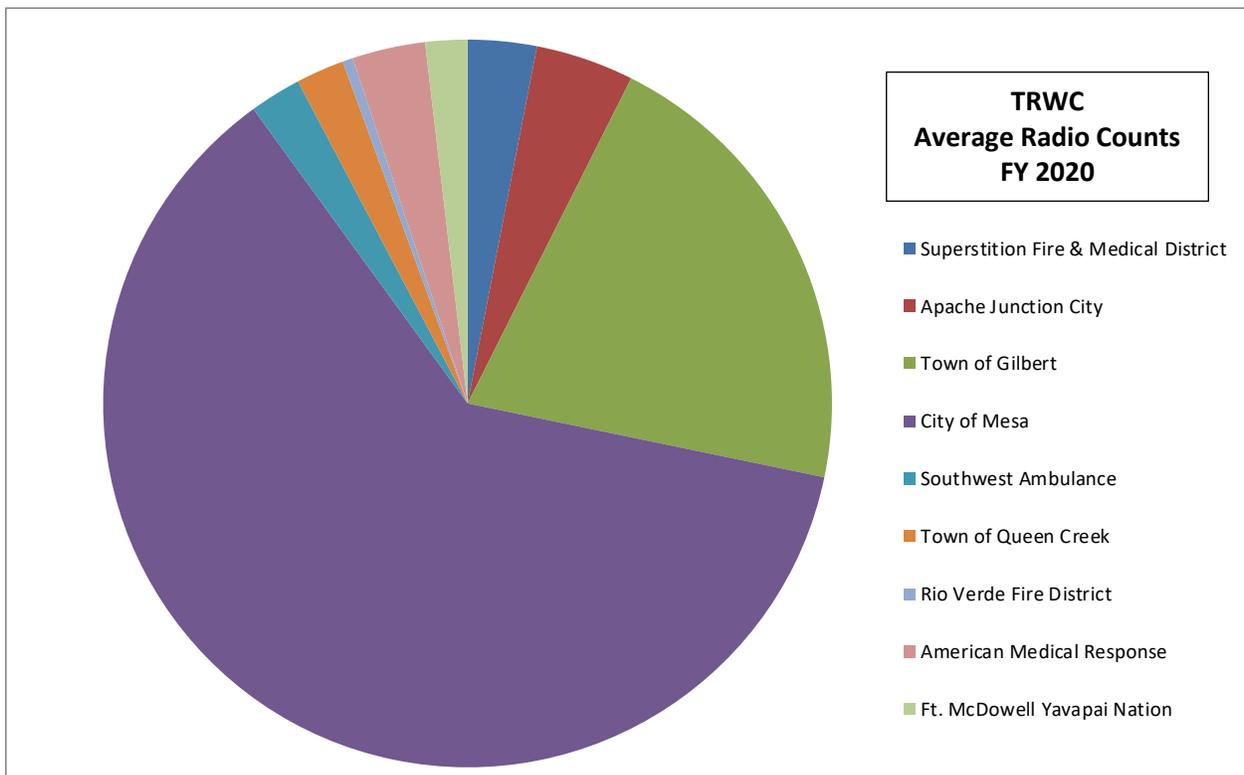
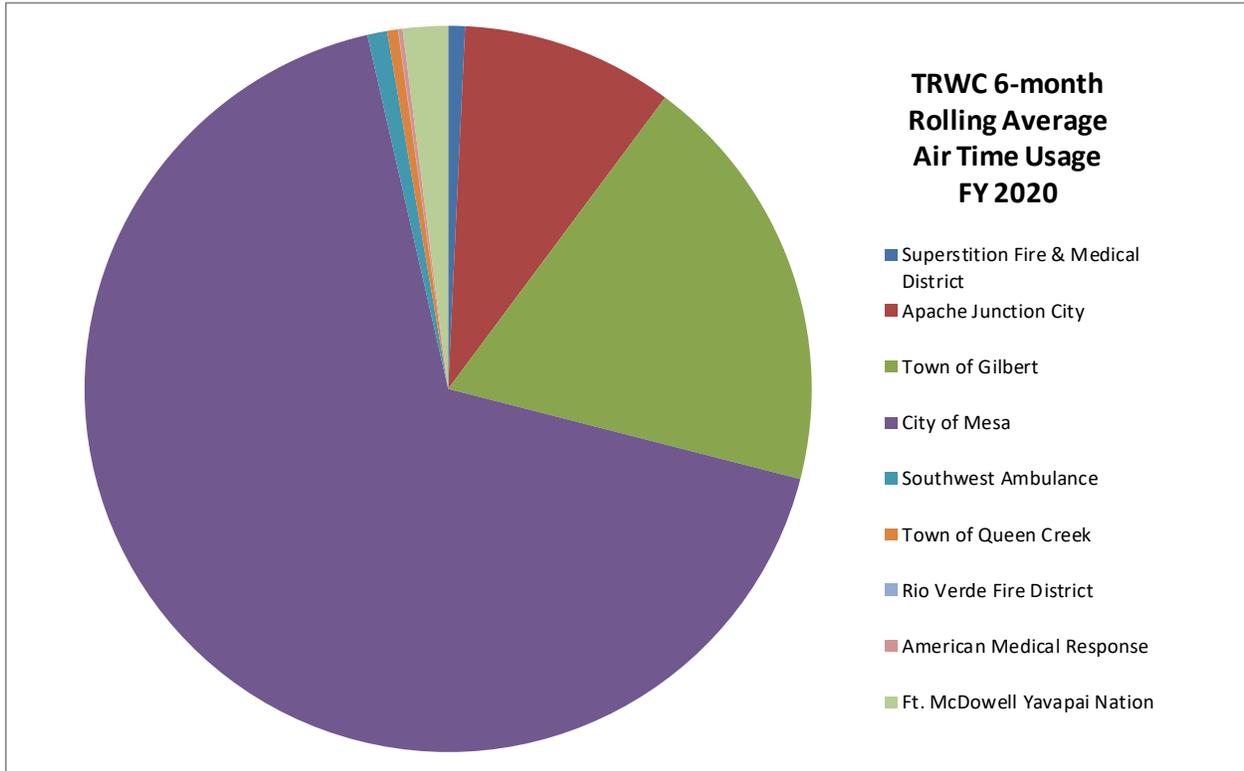
Other News:

- 1) Randy Thompson will be retiring from the City of Mesa effective April 3, 2020. It has been a pleasure to serve the Board of Directors, Executive Committee, and Members of the TRWC for the past 11 years.

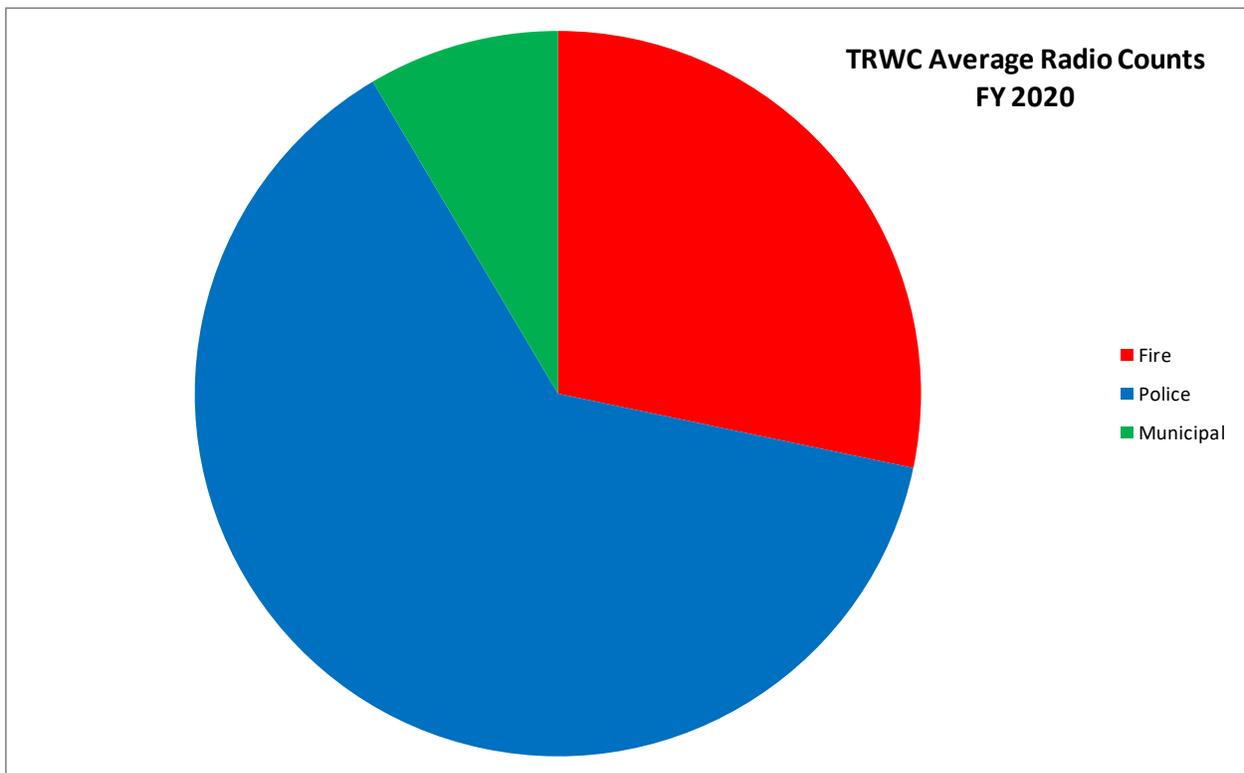
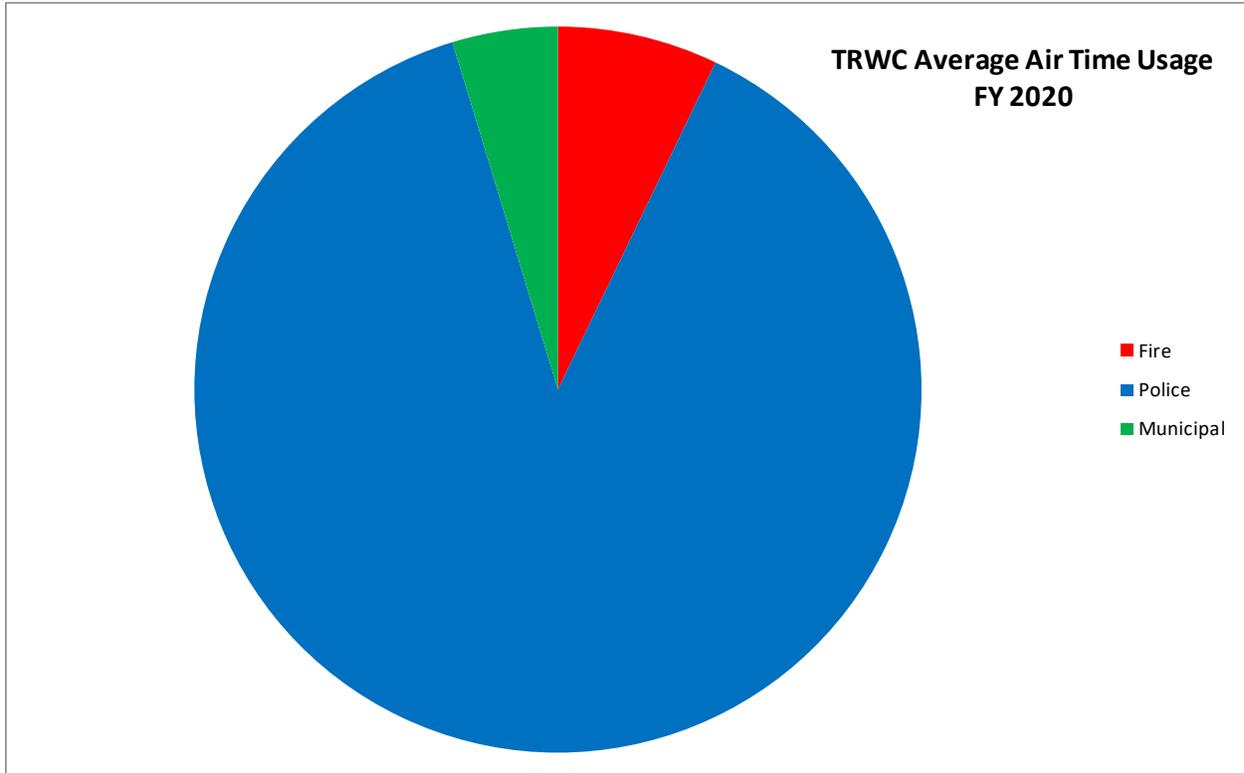
Unscheduled System Impairment, July, 2019 through January, 2020



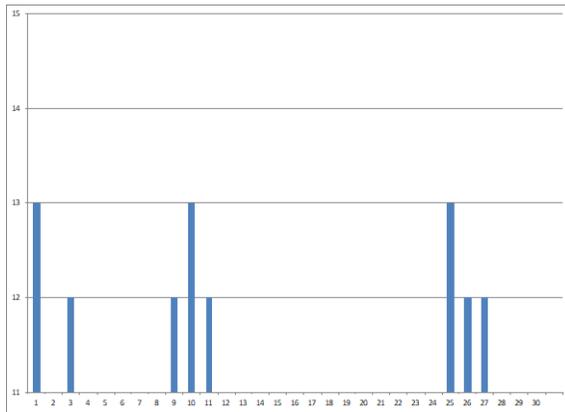
TRWC Administrator Update, February 12, 2020



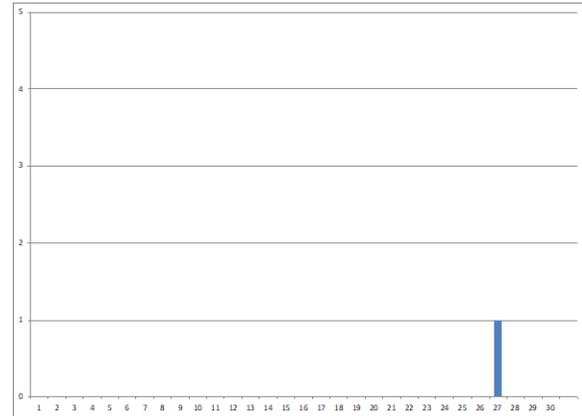
TRWC Administrator Update, February 12, 2020



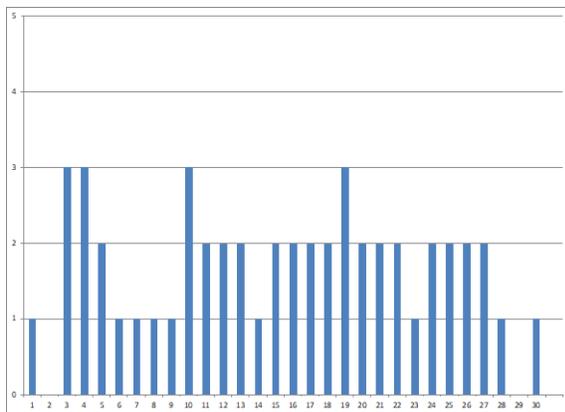
TOPAZ Peak Channel Usage, September, 2019



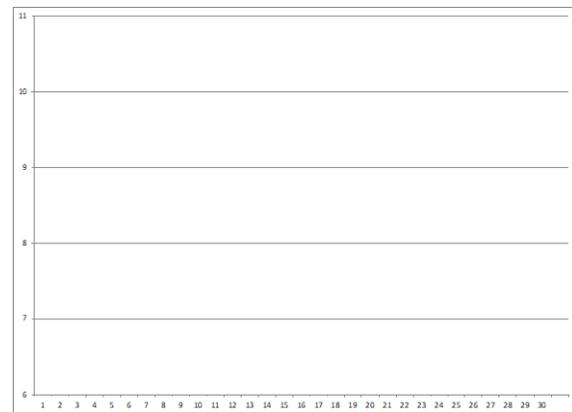
Simulcast Cell



Florence Gardens

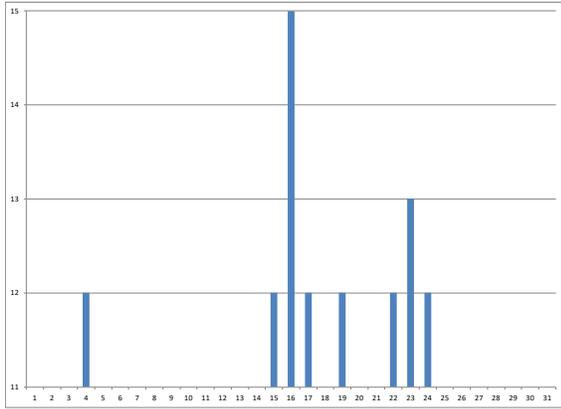


Shaw Butte

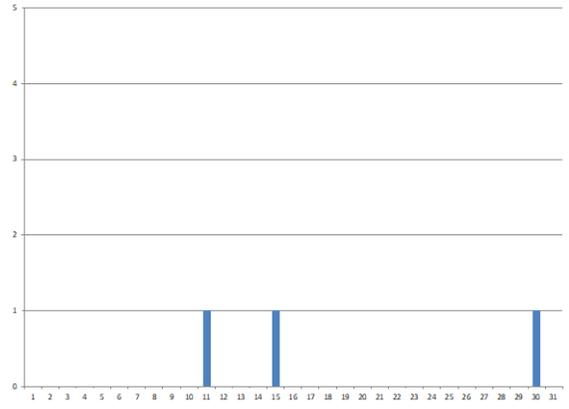


Thompson Peak

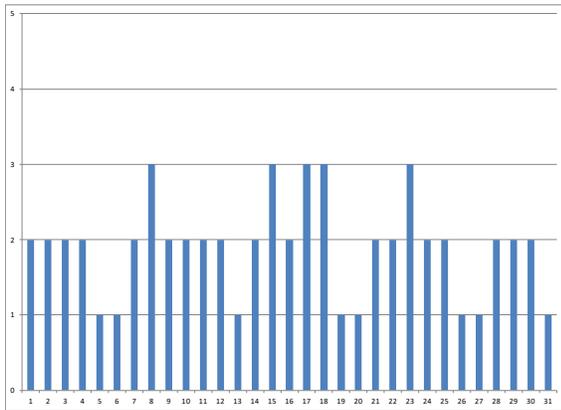
TOPAZ Peak Channel Usage, October, 2019



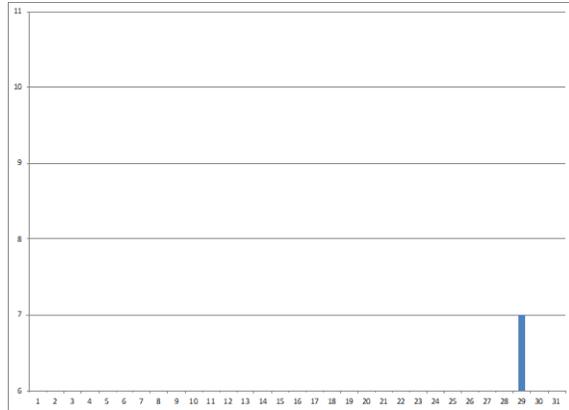
Simulcast Cell



Florence Gardens

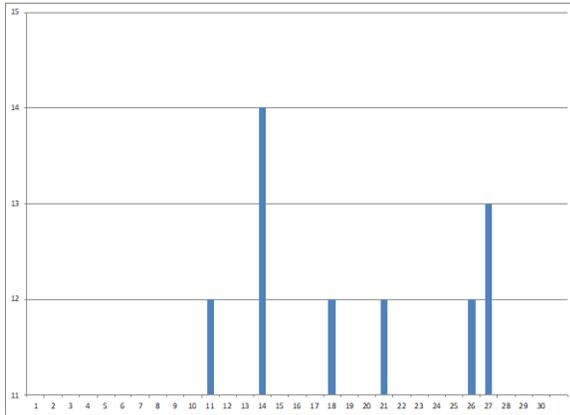


Shaw Butte



Thompson Peak

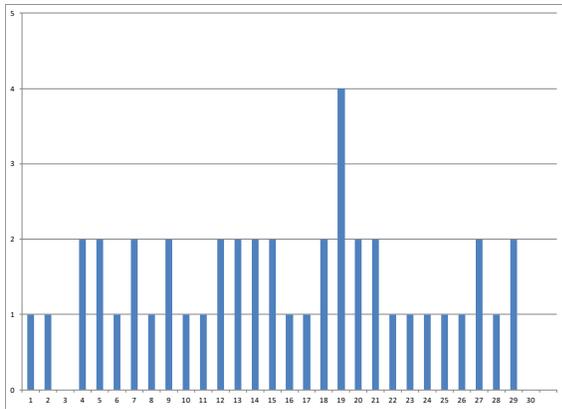
TOPAZ Peak Channel Usage, November, 2019



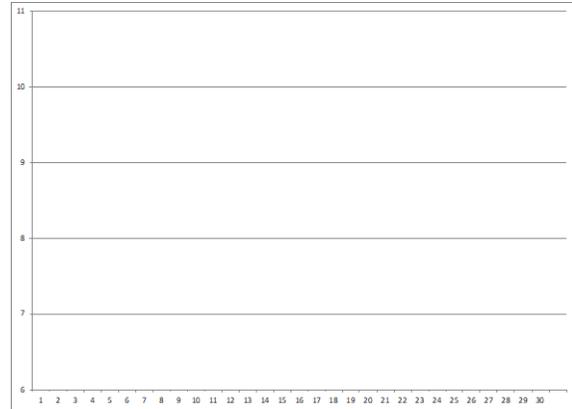
Simulcast Cell



Florence Gardens

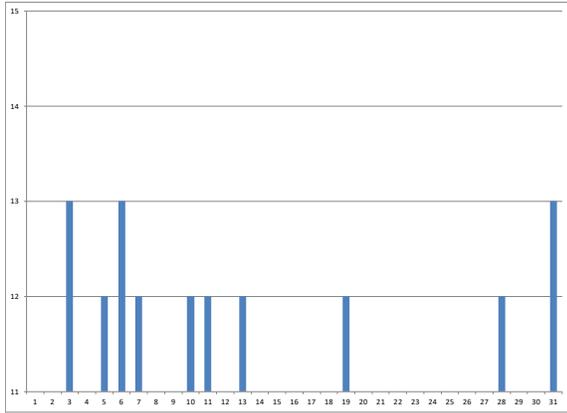


Shaw Butte

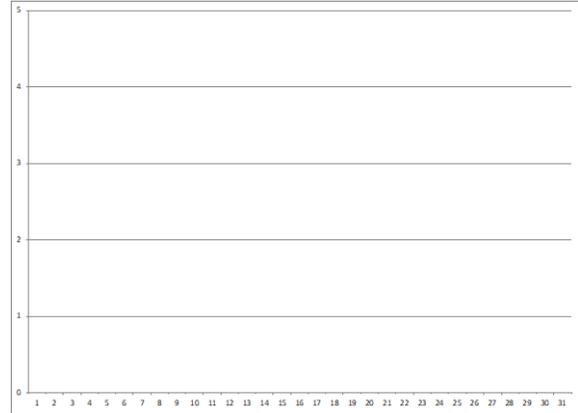


Thompson Peak

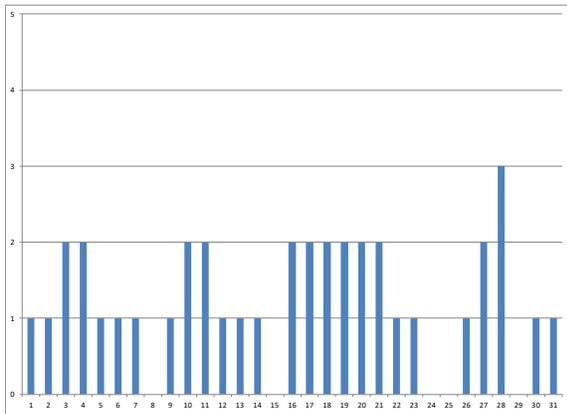
TOPAZ Peak Channel Usage, December, 2019



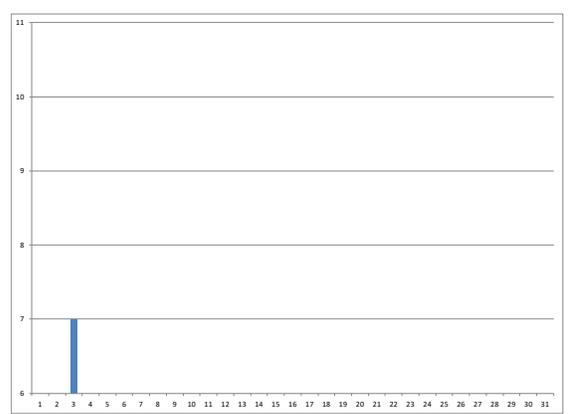
Simulcast Cell



Florence Gardens

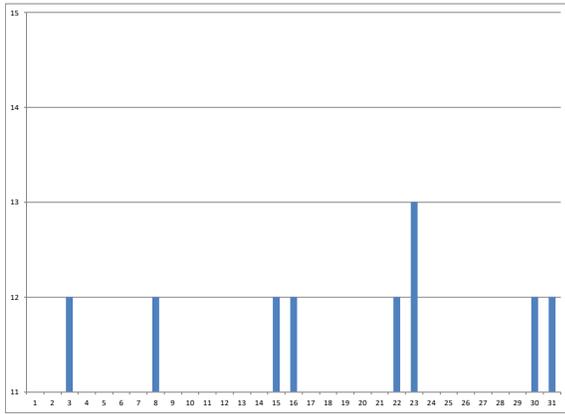


Shaw Butte

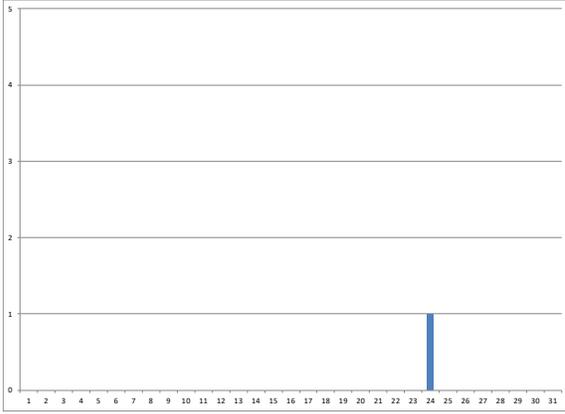


Thompson Peak

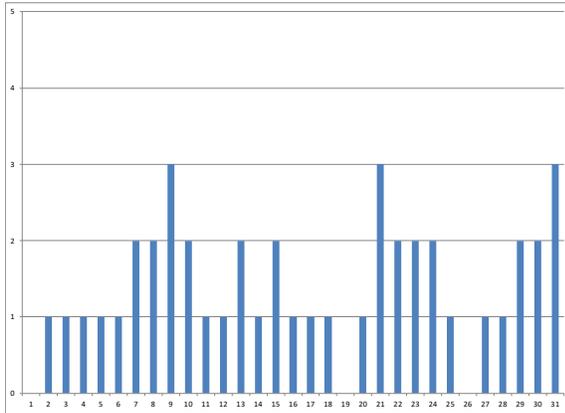
TOPAZ Peak Channel Usage, January, 2020



Simulcast Cell



Florence Gardens



Shaw Butte



Thompson Peak