



TRWC Board of Directors Meeting

September 29th, 2016 - 9AM
Phoenix-Mesa Gateway Airport (PMGA)
Administration Building, Board Room
5835 S. Sossaman Road
Mesa, Arizona 85212

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 & Opening Comments

- a. Materials & Sign-in Sheet
- b. Speaker Cards
- c. Audio Recording
- d. Recognize Outgoing Board Members
- e. Welcome New Board Members

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 the Executive Director 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

March 3rd, 2016 TRWC Board Meeting Minutes

4) TRWC History & Governance Overview - Dale Shaw

5) Discussion and Possible Action on Committee & Working Group Updates

- a. Executive Committee Update - Bill Peters (Co-chair)
 - Governance Material Review Status
 - Pending FY 16/17 Budget Preparation
- b. User Group Update - Dale Crogan (Chairman)
 - VHF Project Update (Motorola attending as guest)
- c. Governance Working Group - Dale Shaw

6) Firstnet Update - Mike Worrell & Dave Faulkner

7) Discussion and Possible Action on Network Administrator Updates:

- a. Budget & Finance Overview - Sherry McGlade
- b. Network Updates & Performance Overview - Randy Thompson

8) 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.

9) Next TRWC Board Meeting(s):

December 15, 2016, 9:00 a.m. - PMGA

10) Adjournment



Montgomery!

District
ou for





TRWC Board of Directors Meeting

March 3, 2016 at 9:00 a.m.

Phoenix-Mesa Gateway Airport (PMGA)

5835 S. Sossaman Road

Mesa, AZ 85212

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). There is a time limit of three minutes for comments.

Directors and Staff Attendees

John Kross, Gary Bradbury, Dave Montgomery, John Pombier, Dale Shaw, Marc Skocypec, Mark Openshaw, Randy Thompson, Bill Anger, Sherry McGlade, and Melanie Humphries.

Minutes

1) Call to Order and Opening Comments – Chairman Kross

- a. Materials and Sign-in Sheet
- b. Speaker Cards
- c. Audio recording
- d. Fort McDowell Yavapai Nation Welcome

Chairman Kross called the meeting to order and welcomed the attendees, provided instruction on the process for public comment, and reminded participants the meeting audio is recorded.

2) Public Comment -

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No Public Comment requests were received.

3) Discussion and Action on Board Meeting Minutes – Chairman Kross

October 26, 2015 TRWC Board Meeting Minutes

Vice-Chairman Bradbury motioned to approve the 10/26/15 TRWC Board Meeting Minutes and John Pombier seconded. All were in favor; the motion passed.

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

a. Executive Committee Update – Chairman Kross and Bob Badgett

- i. Recognition of outgoing Executive Committee Co-chair Dave Hagar
- ii. Introduction of new Executive Committee Co-chair Bill Peters
- iii. Overview of recent activity

Chairman Kross recognized outgoing Executive Committee Co-chair Dave Hagar and introduced new Executive Committee Co-chair Bill Peters.

Bob Badgett provided an overview of recent Executive Committee activity which included budget review, overview, and recommendations, and getting updates and working closely with Motorola on the VHF Project. These have been the two main focuses. Both of these activities will be discussed later in the agenda.

b. User Group Update – Dale Crogan (Chairman)

Dale Crogan shared that the group has continued to meet regarding the VHF Project, to try to get the two systems to work together. Later this spring/early summer, physical testing of the signal sites will take place that will probably be an eight-week process.

c. Governance Working Group – Vice-Chairman Bradbury and Dale Shaw

Vice-chairman Bradbury and Dale Shaw shared that the Governance Working Group (GWG) continues to work on the governance process. While one network is not financially viable, a “system of systems” approach is now being pursued. This will involve the creation of a “Master IGA” and the concept of a “coordinating council”. After the high-level IGA is established, phased work would start toward implementation. Additionally, the vision is to invite others that have systems in the valley or state to have even broader coverage in the valley.

Additionally, the work of the GWG produced a new governance document that was intended to support a corporate model of one system. While the direction has changed, it is recommended that the material produced, which contains some perceived improvements from a governance standpoint, be reviewed by the TRWC Executive Committee. The TRWC Executive Committee would then make recommendations to the Board for changes to make to the current TRWC document.

Mr. Shaw answered questions from the Board. Additionally, Mr. Shaw and Vice-chairman Bradbury will coordinate a joint meeting with the TRWC and RWC boards. Chairman Kross asked that the Board be updated on the meeting progress.

5) Discussion and Possible Action on Recommended 2016/2017 TRWC Budget – Dale Shaw

- a. TRWC 2016-2017 Budget Presentation – Sherry McGlade and Randy Thompson

Dale Shaw provided a brief overview on the topic and Sherry McGlade summarized the proposed Budget as provided in the materials. Dave Montgomery thanked Sherry, Randy, and Dale for their work on the budget.

- b. TRWC 2016-2017 Budget Adoption Consideration (\$2,748,953) – Chairman Kross

John Pombier motioned to approve the Fiscal Year 2016-2017 Budget as proposed and Dave Montgomery seconded. All were in favor; the motion passed.

6) Discussion and Possible Action on Network Administrator Updates:

- a. Current Fiscal Year Budget and Finance Overview – Sherry McGlade

Sherry McGlade summarized the current fiscal year budget and finance overview as provided in the materials.

- b. Network Updates and Performance Overview – Randy Thompson

Randy Thompson provided a summary of the network updates and performance overview as provided in the materials.

- c. Fire Hazard Zone Communications System Project Update (VHF) – Motorola, Norm Folger

Norm Folger provided a summary update of the Fire Hazard Zone Communications System Project (VHF) as provided in the materials. While Mr. Folger projects to stay on budget for this project, the only moderate risk item is a slight chance that Part 22 VHF frequencies would need to be procured. While the project is a little bit behind due to work continuing on acquiring frequencies, Mr. Folger is still forecasting the project will be done in October. Mr. Folger believes they have four clean frequencies and they plan to submit to the FCC this week or early next week.

Mr. Folger and Dale Shaw answered questions from the Board.

7) Next TRWC Board Meeting(s):

March 29, 2016, 9:00 a.m. (if necessary) – Teleconference

June 9, 2016, 9:00 a.m. - PMGA

September 29, 2016, 9:00 a.m. - PMGA

December 15, 2016, 9:00 a.m. - PMGA

Chairman Kross explained the March 29th teleconference meeting was held in reservation if needed exclusive to the budget.

With adoption of the budget today by the Board, this meeting is cancelled.

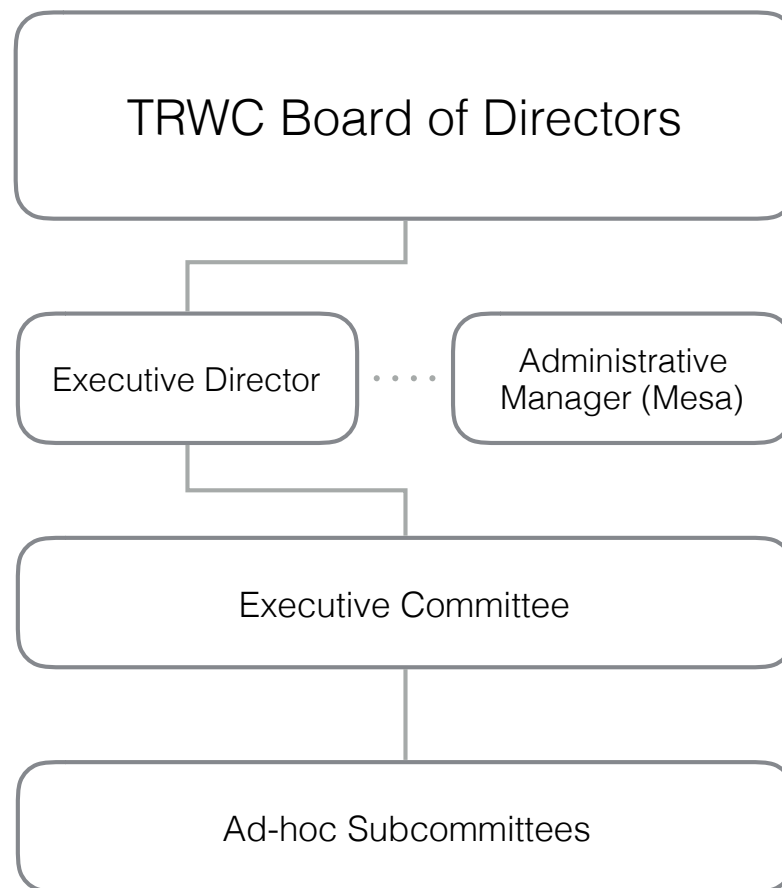
Chairman Kross asked that dates be checked on for a joint board meeting with the TRWC. Mr. Shaw responded that he and Chief Bradbury will talk with the GWG and coordinate.

8) Adjournment – Chairman Kross

Chairman Kross thanked everyone and adjourned the meeting.



- Established in 2008
- Police, Fire, & Municipal Radio
- P25 700/800 MHz
- Fire Hazard Zone VHF
- Serves 4100+ Subscribers
- Covers 360 Square Miles
- \$1.63 Million Operating Budget
- Consumption Based Funding
- Highly Equitable & Economical
- Facilitates Regional Dispatch
- Active Valley & State Partner





Board of Directors Meeting September 29, 2016

VHF Fire Communications System



Project Status - Budget

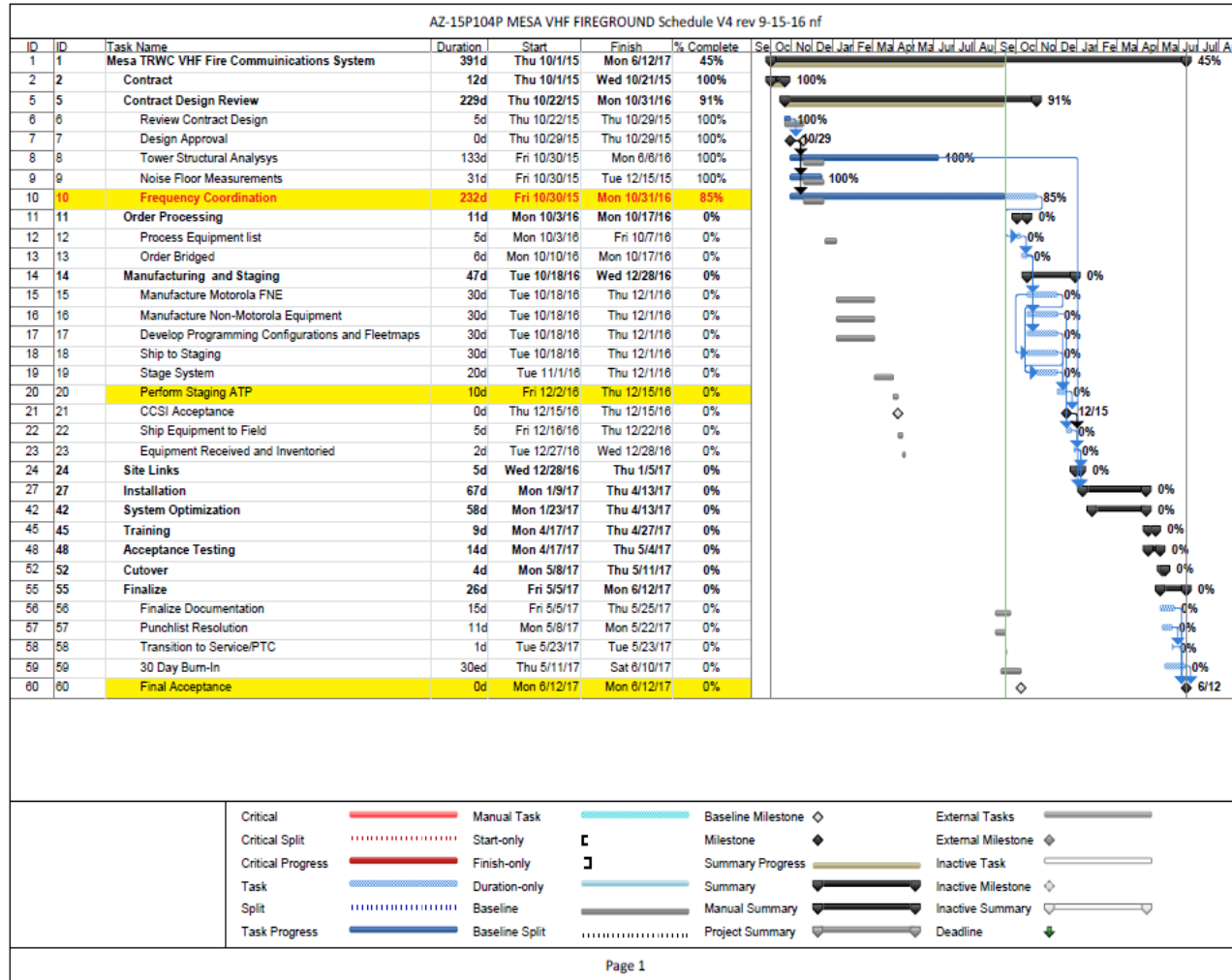
Lease Number: 23762
Commencement Date: 10/1/2015

Contract Value: \$1,696,164.24

Payment 1:	\$600,000.00	Paid 10/1/15
Payment 2:	\$600,000.00	Due 10/1/16
Payment 3:	\$496,164.24	Due 10/1/17

- **No Change since last meeting**
- **On – Budget**
- **No Change Orders (scope change) projected at this time**

Project Status - Timeline



Current Status

- VHF Frequency Coordination continues to delay project.
- Application to the FCC is forecast for October 2016.

Mitigation

- Additional installation and optimization resources.
- Complete project by July 2017.

Project Status - Performance

TRANSITIONING from Design Review Phase to the Manufacturing Phase

Frequency Acquisition Issues

- **Very Iterative Process.** Have submitted frequency application to licensing coordinators; Plan to submit to the FCC in late Sep / early Oct timeframe.
- **Obtained Letter of Concurrence (LOC) from AMR;**
- **Could not get Mayer Fire nor Walker Fire to issue Letters of Concurrence (LOCs); Amended frequency plan and site design accordingly.**

Site Change Issue

- **Thompson Peak site replaced with Rio Verde site.**



Date: September 6th, 2016

To: Regional Wireless Cooperative (RWC) Board of Directors
Topaz Regional Wireless Cooperative (TRWC) Board of Directors

From: Brad Hartig, RWC Chairman
John Kross, TRWC Chairman

Subject: RWC/TRWC Master Intergovernmental Agreement

As shared with you at our recent Board meetings, the joint Governance Working Group (GWG) has continued their work toward establishing a long-term partnership between our Cooperatives. As Chairs of our respective Boards, we are committed to achieving the goals as originally outlined when we first started this process:

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.

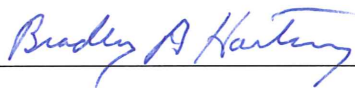
To this end, the GWG has established the following course of action, which they will be pursuing over the coming months:

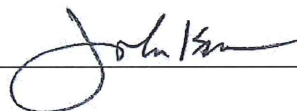
1. The GWG will develop a "Master IGA" (rather than a single system governance) which will incorporate high level principles to maintain or establish regional system(s) compatibility, cooperation and inter-operational and operational roaming.
2. A "coordinating council" will be established to ensure accountability, long-term sustainability and input from stakeholders
3. Implementation will be phased, with 1) Development and approval of the Master IGA, and 2) development of the working group structure, participation, schedules and joint goals.
4. Participation by other regional systems in the Master IGA development process will be evaluated upon completion of a "rough draft" form of the Master IGA.
5. Strive to maintain the 2017 calendar year approval timeframe initially

established when working on a single governance approach. This would include the adoption of the Master IGA. Throughout the process regular updates will be given to the respective boards regarding the overall progress of the working group.

The GWG has continued to work diligently toward improving the communications capabilities for the Public Safety members that serve our communities. You will be presented with a draft Master IGA for discussion at a future board meeting and from there it will be taken to an RWC/TRWC joint Board Meeting for consideration. Should you or your staff have any questions or concerns about the approach, please be sure to contact either TRWC Executive Director Dale Shaw or RWC Executive Director David Felix.

Thank you for your continued commitment and participation in the RWC and TRWC!







Metropolitan Leadership Engagements

PURPOSE

FirstNet is moving to deploy the Nationwide Public Safety Broadband Network (NPSBN). To date, FirstNet has engaged with the states' Single Points Of Contact or SPOCs to consult with the state/local/tribal public safety agencies, executives and elected leaders. To further ensure public safety agencies are informed and prepared for key decisions around implementation of the network, FirstNet is expanding and increasing engagement by conducting leadership briefings with public safety leaders.

Leadership briefings are designed to provide information, receive input and share answers to key questions with public safety officials. Leadership briefings may be tailored to the special needs, topics of interest and priorities of major metropolitan cities or similar regions. Most importantly, FirstNet seeks to listen and learn about local issues that should be addressed by the NPSBN and to obtain support for our shared mission. Agencies may request the FirstNet team come to their department by contacting FirstNet at: info@firstnet.gov.

BRIEFINGS FOCUS:

- Implementation Schedule and Timelines
- Updates on FirstNet
- Release of State Plans
- Key Considerations for Public Safety Leaders/Agencies
- Venue for FirstNet to Listen and Learn

The briefings will provide a venue for leaders to be able to ask questions, discuss their unique needs and create linkages for further dialogue among key staff in areas such as procurement, contracting, technical support and training. FirstNet will utilize these briefing to review the next steps for communities and agencies, discuss timelines and outline ways for elected officials and public safety leaders to engage with their SPOCs and Governors.

OUTCOME OF BRIEFINGS

Metropolitan agency executives and leaders know how to connect to their state SPOCs and Governors for the state planning process, understand the FirstNet timeline and decision considerations and are able to request additional briefings and engagements from FirstNet for topics such as technical and operational requirements.

SUGGESTED ATTENDEES

- Mayor or Representative
- Police Chief/Sheriff
- Fire Chief/Commissioner
- EMS Director
- Emergency Manager
- Head of wireless procurement and contracting
- Chief Technical/Information Officer
- Staff involved with governance, procurement, training and management of wireless services

Topics and Briefings Offered

Executive Leadership

Dialogue (30-60 Minutes):
Review high level areas for leaders

Operations Staff Meeting

Discuss overview of FirstNet, implementation planning, unique user needs and potential training requirements

Procurement Issues

Review procurement and contracting process and current commitments

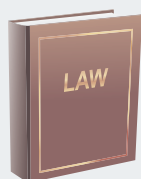
Technical Issues

Discuss any technical questions and needs as well as technical requirements for implementation

FirstNet by the Numbers

VISION

To provide emergency responders with the first high-speed, wireless nationwide public safety broadband network (NPSBN)



THE LAW 2.22.12

FirstNet becomes Law
PL 112-96

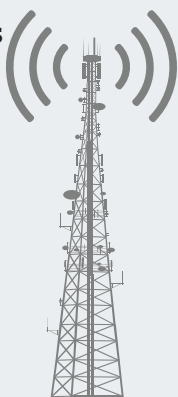
GOVERNANCE



The FirstNet Board has **15** members, including those with telecommunications and public safety backgrounds.

Each Governor appoints **1** single Point of Contact and governing body to represent the state's interests to FirstNet.

40 member Public Safety Advisory Committee (PSAC) advises FirstNet on public safety intergovernmental matters.



WHO WILL USE FIRSTNET

4-13 Million potential FirstNet public safety users nationwide



FirstNet's goal is to ensure there is service in all **50** US states, **5** territories, and the District of Columbia.

FUNDING

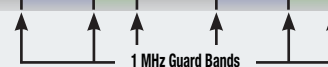


\$7B authorized to build the FirstNet Network. Funded by spectrum auctions through 2022.

BAND CLASS (BC) 14

20MHz of bandwidth has been dedicated to public safety in the prime upper **700MHz** frequency range.

BC 17		BC 17		BC 17		BC 17		BC 17		BC 17	
BC 12	BC 29	BC 12	BC 13	BC 14	LMR	BC 13	BC 14	LMR	BC 13	BC 14	LMR
COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	PS BROADBAND	COMMERCIAL	PS BROADBAND	PS NARROWBAND	COMMERCIAL	PS BROADBAND	PS NARROWBAND
UL	ULINK	DOWNLINK	DL	DOWNLINK	DOWNLINK	ULINK	ULINK	ULINK	ULINK	ULINK	ULINK
6 MHz	12 MHz	12 MHz	6 MHz	12 MHz	11 MHz	10 MHz	6 MHz	11 MHz	10 MHz	6 MHz	6 MHz



First Responder Network Authority
For more FirstNet facts visit: www.firstnet.gov



Thank you to the State of Oregon for the initial development of this document

(revised September 2015)

FirstNet by the Numbers

THE COVERAGE CHALLENGE

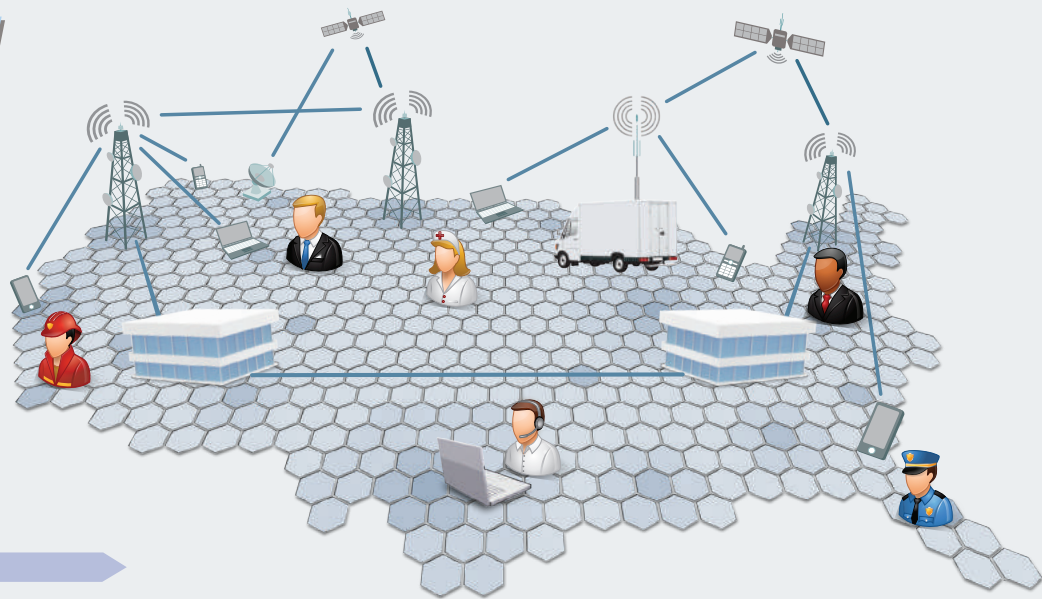
Coverage challenge: Providing service to **60,000** public safety agencies, **3,144** counties, and **566** federally recognized tribes in coverage areas including urban and rural



FIRSTNET NETWORK

To meet this challenge, FirstNet is considering a network architecture using land-based cellular, satellite infrastructure and deployable systems to provide coverage.

4G LTE is **10x**
faster than 3G wireless service



THE ROAD TO THE NPSBN



2014-2016

- Strategic Program Roadmap
- Conduct Consultation
- Collect data and design network
- Develop and award comprehensive RFP
- Establish network core

HOW MUCH WILL IT COST?

To offer services that meet the needs of public safety at a cost that's competitive and compelling to users.

– FirstNet Tenet

2016+

- Governor reviews design offer and opts in or out of FirstNet network deployment
- Integrate Next Generation 9-1-1

2022

Network substantially in operation

SOURCES FOR DATA:

60,000 public safety agencies (dhs.gov) | 3,144 counties (usgs.gov) | 566 federally recognized tribes (bia.gov)



First Responder Network Authority

For more FirstNet facts visit: www.firstnet.gov



Thank you to the State of Oregon for the initial development of this document

(revised September 2015)



FirstNet®

FirstNet and Elected Officials

WHAT IS THE FIRST RESPONDER NETWORK AUTHORITY (FIRSTNET)?

FirstNet is an independent authority within the U.S. Department of Commerce's National Telecommunications and Information Administration. FirstNet is governed by a 15-member Board consisting of the Attorney General of the United States, the Secretary of Homeland Security, the Director of the Office of Management and Budget, and 12 members appointed by the Secretary of Commerce. The FirstNet Board is composed of representatives from public safety; local, state and federal government; and the wireless industry.

Signed into law on February 22, 2012, the [Middle Class Tax Relief and Job Creation Act](#) created FirstNet. The law gives FirstNet the duty to ensure the building, deployment, and operation of the first nationwide public safety broadband network. FirstNet will provide a single interoperable platform for public safety communications.

WHAT WILL THE FIRSTNET NETWORK DO FOR MY CITY OR COUNTY?

The FirstNet network is intended to improve citizen and responder safety and increase the efficiency and effectiveness of emergency response through cutting edge broadband communications. Imagine a day when a single communications network can be used to dispatch EMS personnel, a medical helicopter, police officers, and fire personnel from different jurisdictions all at the same time, utilizing voice, video, and data at broadband speeds. FirstNet's goal is for public safety personnel using the FirstNet network to be able to share applications, access databases, and provide better informed responses to incidents through integrated communications.

FirstNet's goal is to provide a network with reliability and nationwide coverage that meets the needs of public safety personnel when they are on the job. FirstNet is also aiming to provide coverage solutions that let public safety "take the network along" to the destination in certain geographies. FirstNet plans to create a nationwide standard of service while affording localized customization and control.

WILL THE FIRSTNET NETWORK REPLACE THE LAND MOBILE RADIO (LMR) NETWORKS PUBLIC SAFETY USES TODAY?

When the FirstNet network launches, it will provide mission-critical, high-speed data services to supplement the voice capabilities of today's Land Mobile Radio (LMR) networks. Initially, the FirstNet network is intended to be used for sending data, video, images and text. The FirstNet network is also intended to carry location information and eventually support streaming video. FirstNet plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives. The FirstNet network will not become a viable replacement for LMR until the availability of mission-critical voice functionality that meets or exceeds the needs of public safety agencies.

WHO IS RESPONSIBLE FOR BUILDING THE NETWORK COMPONENTS?

FirstNet is responsible for ensuring the building of the network core. If a state decides to opt-in and accept FirstNet's state plan, FirstNet will pay to build out the state's radio access network (RAN) that will connect to the core. FirstNet will also be financially responsible for the network's operations and maintenance.

WILL ALL MY PUBLIC SAFETY EMPLOYEES HAVE TO SUBSCRIBE TO THE NETWORK?

Use of the FirstNet network is voluntary, and no public safety agency is required to participate. However, a network built for and dedicated to public safety agencies should provide a dependable and affordable user experience making FirstNet network an attractive choice for first responders.

HOW MUCH IS THE SUBSCRIPTION COST AND WILL IT BE PER USER OR PER DEVICE?

FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make the FirstNet network self-sustaining. The costs for FirstNet's services and devices have not yet been set.

WHO WILL BE RESPONSIBLE FOR OPERATING AND MANAGING THE NETWORK IN MY CITY OR COUNTY?

FirstNet will be responsible for managing core operations and RAN operations for opt-in states. FirstNet also will enable robust identity management and authentication practices at the local level.

WHEN WILL THE NETWORK BE AVAILABLE IN MY CITY OR COUNTY?

Each state/territory will participate in a series of meetings with FirstNet as part of the required consultation process. Once the state plan is finalized, and a governor opts into the network, the RAN will be built to the plan specifications. FirstNet cannot determine at this time when its services will be available to cities and counties.

HOW CAN MY CITY OR COUNTY PARTICIPATE IN THE DEVELOPMENT OF THE FIRSTNET NETWORK?

FirstNet is responsible for working through the designated state Single Points of Contact (SPOC) to consult with states, local communities, tribal governments, and first responders to gather requirements for developing its network deployment plans. Elected officials may provide input to FirstNet via the outreach efforts being coordinated by the SPOC in each state and through future proposed rulemaking processes that will take place.

Elected officials may also want to contact members of the FirstNet Public Safety Advisory Committee (PSAC). PSAC members represent associations whose memberships are comprised of local, state, and tribal entities. More information regarding the PSAC and its membership is available at <http://firstnet.gov/about/public-safety-advisory-committee>.

FirstNet often participates in professional association meetings and conferences. To request FirstNet's participation at a meeting or conference, please contact us at info@firstnet.gov.

To stay up-to-date on FirstNet activities, elected officials can track progress at www.firstnet.gov and @FirstNetGov on Twitter.

WHAT AGENCIES BESIDES LAW ENFORCEMENT, FIRE, EMS, AND 911 CAN USE THE NETWORK? WHAT OTHER CITY/COUNTY OFFICIALS WILL BE ABLE TO USE THE NETWORK DURING AN EMERGENCY?

In September 2014, FirstNet issued a public notice seeking comments regarding its interpretation of network users (among other topics), including "public safety entity", "secondary" and "other" network users. Sixty-three responses were received and FirstNet will review and analyze the comments before making a final determination. State and territory specific discussions regarding network users will continue during the consultation process.

WHO IS MY STATE/TERRITORY SINGLE POINT OF CONTACT FOR FURTHER INFORMATION?

To identify the SPOC for a state, visit <http://firstnet.gov/consultation>.





FirstNet's vision for the State Plan is an online portal that will debut FirstNet's products and services designed to meet the unique needs of Public Safety. The portal will also include the necessary technical specifications and requirements for States/Territories interested in assuming the responsibilities of deploying the Radio Access Network ("Opt-Out"), including the funding level as determined by NTIA.

FOR PUBLIC SAFETY



This section will detail products and services for Public Safety agencies considering adopting FirstNet, such as:



COVERAGE

Band 14 coverage, possible non-Band 14 coverage, and deployable options



APPLICATIONS AND FEATURES

Public Safety-facing applications, Quality of Service, Priority and Pre-emption (QPP), ICAM and Mission Critical services



SERVICES

Plans, pricing, procurement options, security, and customer support



DEVICES AND ACCESSORIES

Band 14 device portfolio, accessories, and wearables

FOR POTENTIAL STATE RAN PARTNERS

This section will provide technical specifications and requirements for Opt-Out proposals on topics such as:

POLICY COMPLIANCE

FirstNet policies on coverage, security, performance and other matters must be planned for and adhered to in Opt-Out scenarios.

TIMEFRAME/COST

Opt-Out proposals must be comparable in terms of deployment timeframe and cost. Cost comparison metrics will be included.

INTEROPERABILITY

Alternative RAN proposals must have and maintain interoperability with the FirstNet core throughout the terms of agreement. Network policies and equipment specifications will be included.



Sensitive or proprietary information in this section of the State Plan will be protected with access controls.



WHAT IS THE STATE PLAN DRAFT?

An **OPPORTUNITY** for States/Territories to review and discuss FirstNet's RAN proposal **PRIOR** to delivery to Governors.

State Plan drafts will be developed by FirstNet and its Partner and delivered online

Drafts may be released simultaneously to States and Territories

The draft review process must be time-constrained to control costs and prevent delays

State Plan drafts are not required by the Act, and will not be written by States

WHAT IS THE SCOPE OF OPT-OUT?

States that Opt-Out **ASSUME THE RESPONSIBILITY** and associated **COSTS** and **RISKS** for the ongoing deployment, operation, maintenance, and improvement of the RAN in their State, which must be maintained in accordance with FirstNet's network policies. Opt-Out **SHOULD BE COST-NEUTRAL TO THE NPSBN**, and **DOES NOT IMPACT** FirstNet's network services, single spectrum license, or customer relationships.

OPT-OUT STATES:



MUST apply to the FCC to build a State RAN



MUST apply to sub-lease FirstNet spectrum capacity



MAY apply to NTIA for RAN construction grant funding

BUT... IN ALL STATES AND TERRITORIES:



FirstNet will be dedicated to delivering the best service possible to public safety



FirstNet service will be available for public safety agency adoption



FirstNet network policies – such as priority, local control, and security – will be consistent

WHERE ARE STATE INPUTS?

State- and Territory-provided inputs have informed FirstNet's decision-making **EVERY STEP OF THE WAY**. Insights and interactions from **INITIAL CONSULTATION**, the **ACQUISITION PROCESS**, **PUBLIC NOTICE** processes, and **DATA COLLECTION** informed FirstNet's RFP, and thus the State Plan.

55

Initial Consultations

54

State Data Submissions

3

Public Notices

1

Special Notice Release

1

RFP



FUTURE OPPORTUNITIES:



(Optional) updated data due 9/30/16



Consultation with Public Safety will continue beyond State Plan delivery

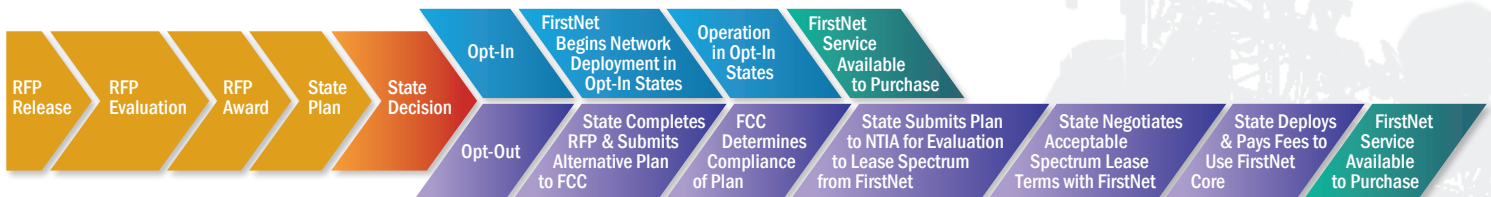


FirstNet®

Key Factors to Consider for the Governor to Opt-In or Opt-Out of the FirstNet Plan

Under the Middle Class Tax Relief and Job Creation Act of 2012 (the “Act”), FirstNet will deliver a final State Plan to the Governor to make an Opt-In/Opt-Out Decision. The decision identifies whether FirstNet or the state/territory takes on the responsibility to deploy, operate and maintain the State Radio Access Network (RAN). Regardless of the state/territory decision, the RAN must interconnect with the national FirstNet core network.

Key Steps – National Deployment



The State/Territory Decision: One time

Opt-In — RAN only — FirstNet takes on responsibility to deploy, operate, and maintain RAN

- Funds to build network — funded by FirstNet/partner
- Funds to operate/upgrade network — funded by FirstNet/partner
- User fees — funded by individuals/agencies
- Continuing consultation — staffing funded for by the state/territory, as needed or requested

Opt-Out — RAN only — state/territory takes on responsibility to deploy, operate, and maintain RAN

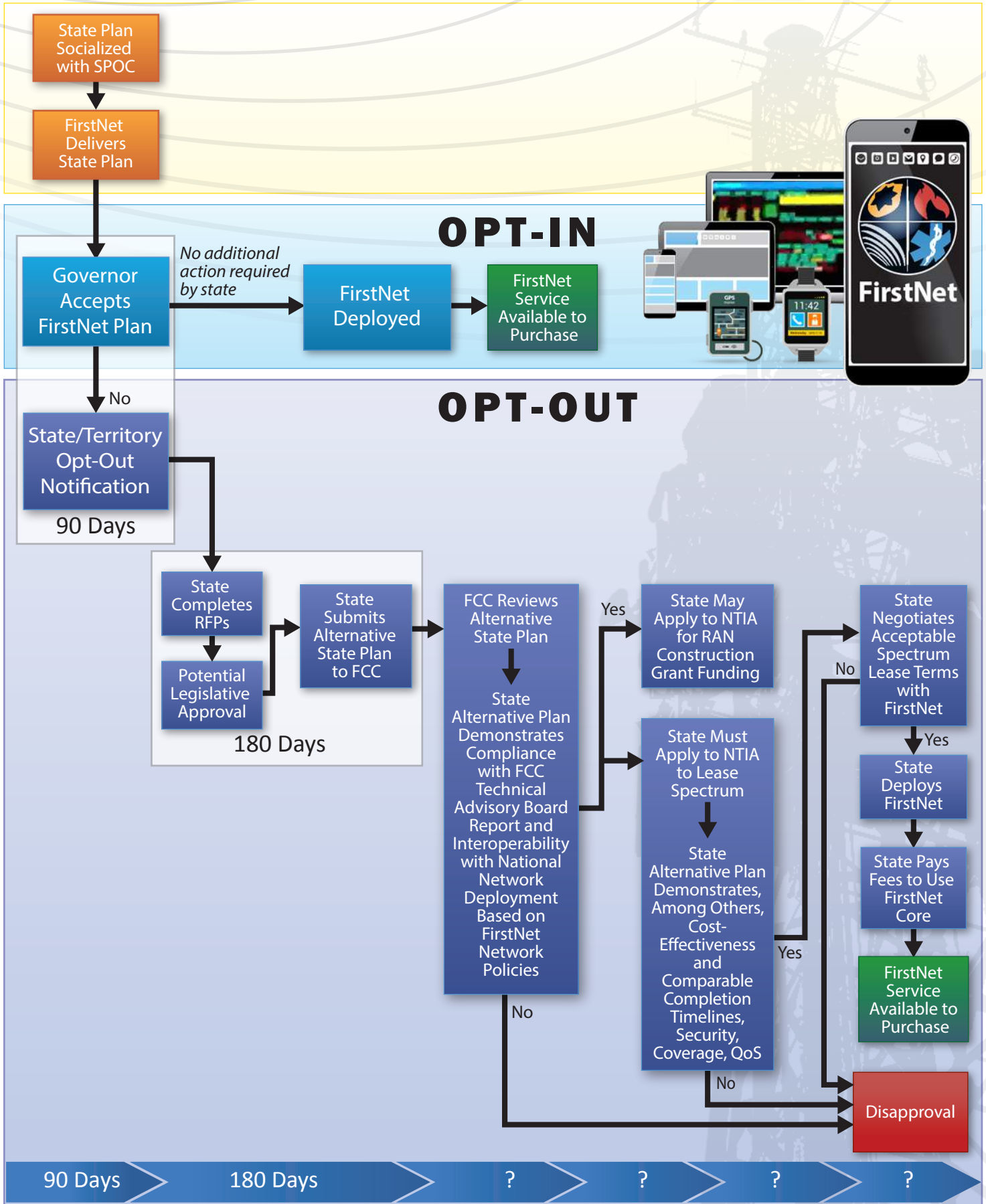
Alternative plan approval process –

- submission to and approval by FCC of the interoperability requirements under the Act of the alternative RAN plan
- application to and approval by NTIA of Act requirements (including ongoing interoperability cost effectiveness, and comparable security, coverage, timelines, and quality of service) to negotiate spectrum lease terms with FirstNet
- negotiation of spectrum capacity lease with FirstNet
- Funds to build network — funded by state/territory resources with potential NTIA grant for some portion
- Funds to deploy, operate, and maintain network including compliance with national network policies and use of national core — funded by state/territory resources
- User fees — funded by individuals/agencies

The Agency Decision: Ongoing

Agency by Agency buying of FirstNet services — once network is deployed

Opt-In/Opt-Out Process





FirstNet®

FirstNet and Law Enforcement

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Signed into law on February 22, 2012, the Middle Class Tax Relief and Job Creation Act created FirstNet. The law gives FirstNet the duty to build, operate and maintain the first high-speed, nationwide wireless broadband network dedicated to public safety entities. FirstNet will provide a single interoperable platform for public safety communications.

WHAT WILL BE POSSIBLE WITH THE FIRSTNET NETWORK?

The FirstNet network will enable faster, more informed and better coordinated response to incidents. Just as smartphones have changed personal lives, FirstNet devices and applications will ultimately change the way law enforcement personnel and agencies operate. Imagine a day when one interoperable communications network can be used to dispatch police, fire, and EMS personnel from different jurisdictions all at the same time. Law enforcement personnel using the FirstNet network will be able to share images and applications, and access multiple databases to have a common operational picture as incidents unfold.

FirstNet's goal is to provide public safety-grade reliability and extensive coverage so law enforcement personnel can count on the network when they are on the job. FirstNet is also aiming to provide coverage solutions that let law enforcement personnel "take the network along" to the destination in certain geographies. Incident commanders and local officials will have local control over the network so, for example, they can assign users and talk groups and determine who can access applications.

When the FirstNet network launches, it will provide mission-critical, high-speed data services to supplement the voice capabilities of today's Land Mobile Radio (LMR) networks. Initially, the FirstNet network will be used for sending data, video, images and text. The FirstNet network will also carry location information and eventually support streaming video. FirstNet plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives.

WHY WAS FIRSTNET CREATED?

The public safety community fought hard to fulfill the 9/11 Commission's last standing recommendation and lobbied Congress to pass legislation establishing a dedicated, reliable network for advanced data communications nationwide. During emergencies, police officers, sheriffs, deputies, and other law enforcement personnel need priority access and preemption, which are not available on commercial networks.

HOW WILL THE FIRSTNET NETWORK BENEFIT LAW ENFORCEMENT AGENCIES?

Using the FirstNet network will improve situational awareness and keep law enforcement personnel safer with an improved communications capability. The FirstNet network will make it possible to use new audio reporting tools in the field to gain efficiency. Real-time data and audio/video feeds sent before, during and after incident response will improve the overall effectiveness of law enforcement personnel.

WHAT WILL USERS PAY FOR FIRSTNET'S SERVICES?

FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make FirstNet self-sustaining. The use of FirstNet's services and applications will be voluntary. The costs for FirstNet's services and devices have not yet been set.

HOW CAN MY LOCAL AGENCY PARTICIPATE IN THE DEVELOPMENT OF THE FIRSTNET NETWORK?

FirstNet is responsible for working through the designated State Single Point of Contact (SPOC) to consult with states, local communities, tribal governments, and first responders to gather requirements for developing its network deployment plans. Law enforcement personnel can provide input to FirstNet via the outreach efforts coordinated by the SPOC in each state. To identify the SPOC for your state and let them know you are interested, go to <http://firstnet.gov/consultation>. Law enforcement personnel may also want to contact members of the FirstNet Public Safety Advisory Committee (PSAC) and participate in outreach discussions at professional association meetings and conferences. More information regarding the PSAC and its membership is available at <http://firstnet.gov/about/public-safety-advisory-committee>. To stay up-to-date on FirstNet activities, law enforcement personnel can track progress at www.firstnet.gov.





FirstNet®

FirstNet and the Fire Service

WHAT IS THE FIRST RESPONDER NETWORK AUTHORITY (FIRSTNET)?

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Signed into law on February 22, 2012, the Middle Class Tax Relief and Job Creation Act created FirstNet. The law gives FirstNet the duty to build, operate and maintain the first high-speed, nationwide wireless broadband network dedicated to public safety entities. FirstNet will provide a single interoperable platform for public safety communications.

WHAT WILL BE POSSIBLE WITH THE FIRSTNET NETWORK?

The FirstNet network will enable faster, better coordinated response to natural and manmade disasters. Just as smartphones have changed personal lives, FirstNet devices and applications will ultimately change the way career firefighters and volunteers operate. Imagine a day when one interoperable communications network can be used to dispatch an extrication team, a medical helicopter, police and EMS personnel from different jurisdictions all at the same time. Fire personnel using the FirstNet network will be able to share images and applications, and access databases to have a common operational picture as incidents unfold.

FirstNet's goal is to provide public safety-grade reliability and extensive coverage so fire personnel can count on the network when they are on the job. FirstNet is also aiming to provide coverage solutions that let fire personnel "take the network along" to their destination in certain geographies. Incident commanders and local officials will have local control over the network so, for example, they can assign users and talk groups and determine who can access applications.

When the FirstNet network launches, it will provide mission-critical, high-speed data services to supplement the voice capabilities of today's Land Mobile Radio (LMR) networks. Initially, the FirstNet network will be used for sending data, video, images and text. The FirstNet network will also carry location information and eventually support streaming video. FirstNet plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives.

WHY WAS FIRSTNET CREATED?

The public safety community fought hard to fulfill the 9/11 Commission's last standing recommendation and lobbied Congress to pass legislation establishing a dedicated, reliable network for advanced data communications nationwide. During emergencies, fire personnel need priority access and preemption, which are not available on commercial networks.

HOW WILL THE FIRSTNET NETWORK BENEFIT THE FIRE SERVICE?

Using the FirstNet network will greatly improve situational awareness and keep fire personnel safer with an improved communications capability. The FirstNet network will make it possible to gain quick access to new tools and applications that provide location data and other vital information for firefighting. The FirstNet network will enable the exchange of real-time data and audio/video feeds on the fireground to assist incident commanders with operational decision-making and maximize search and rescue and suppression effectiveness.

WHAT WILL USERS PAY FOR FIRSTNET'S SERVICES?

FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make FirstNet self-sustaining. The use of FirstNet's services and applications will be voluntary. The costs for FirstNet's services and devices have not yet been set.

HOW CAN MY LOCAL AGENCY PARTICIPATE IN THE DEVELOPMENT OF THE FIRSTNET NETWORK?

FirstNet is responsible for working through the designated State Single Points of Contact (SPOC) to consult with states, local communities, tribal governments, and first responders to gather requirements for developing its network deployment plans. Fire personnel can provide input to FirstNet via the outreach efforts coordinated by the SPOC in each state. To identify the SPOC for a state and let them know you are interested, go to <http://firstnet.gov/consultation>. Fire personnel may also want to contact members of the FirstNet Public Safety Advisory Committee (PSAC) and participate in outreach discussions at professional association meetings and conferences. More information regarding the PSAC and its membership is available at <http://firstnet.gov/about/public-safety-advisory-committee>. To stay up-to-date on FirstNet activities, fire personnel can track progress at www.firstnet.gov.





FirstNet®

FirstNet and Emergency Medical Services

WHAT IS THE FIRST RESPONDER NETWORK AUTHORITY (FirstNet)?

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Federal legislation creating FirstNet was signed into law in February, 2012. FirstNet has been obligated by Congress to take all actions necessary to ensure the building, deployment and operation of the nationwide public safety broadband network. FirstNet will provide a single, broadband, interoperable platform for public safety mobile communications.

WHAT WILL BE POSSIBLE WITH THE FIRSTNET NETWORK?

FirstNet will enable emergency medical services personnel to exchange key diagnostic information with doctors and provide treatment to patients like never before. Imagine a day when one interoperable communications network will provide high speed data, including video, text, graphics and eventually voice, to connect all of the participants in an EMS encounter. FirstNet will provide the broadband connectivity between EMS and hospitals to support advanced diagnostics and treatment in the field, with solid physician oversight and advice. In addition, access to many useful databases and applications will be supported.

FirstNet's goal is to provide public safety-grade reliability and sufficient coverage so EMS personnel can count on the network when they are on the job. EMS chiefs and local officials will have local control over the network so they can assign users and talk groups and determine who can access applications.

When the FirstNet network launches, it will provide mission-critical, high-speed mobile data services to supplement the voice capabilities of today's traditional public safety Land Mobile Radio (LMR) networks. Initially, the FirstNet network will be used for sending data, video, images and text. The FirstNet network will also carry location information and support streaming video. As the 4G LTE standard used by the FirstNet network matures, voice communication will also be part of the FirstNet offering.

WHY WAS FIRSTNET CREATED?

The 9/11 Commission recommended that a nationwide, dedicated, reliable network for public safety communication be created. The public safety community lobbied Congress to pass legislation to provide for this advanced data communications network. Some EMS services already make use of broadband data connectivity provided by commercial cellular providers. But, during emergencies, EMS personnel need priority access and preemption that are not available on existing commercial networks.

HOW WILL THE FIRSTNET NETWORK BENEFIT EMS?

Using the FirstNet network will improve situational awareness and decision-making by bringing broadband, high speed data connectivity to the ambulance and the patient in the field. The FirstNet network will make it possible to use new diagnostic tools, such as ultrasound and CT in the ambulance, to enhance decision making and treatment capability. The broadband connectivity provided by FirstNet will bring the “hospital to the ambulance” like never before possible. This kind of connection, while units are on the scene and during transport, will improve all levels of pre-hospital care.

WHAT WILL USERS PAY FOR FIRSTNET’S SERVICES?

While final costs have not been set, FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make FirstNet self-sustaining. The use of FirstNet’s services and applications will be voluntary.

HOW CAN MY LOCAL HOSPITAL AND EMS AGENCY PARTICIPATE IN THE DEVELOPMENT OF THE FIRSTNET NETWORK?

The Governor of each State has designated a Single Point of Contact (SPOC) to gather local requirements for the network from each community, tribal region, and public safety entity. EMS personnel can provide input to FirstNet through the SPOC in your State. To identify the SPOC for your state and become involved, go to <http://firstnet.gov/consultation>. EMS personnel may also contact members of the FirstNet Public Safety Advisory Committee (PSAC). More information regarding the PSAC and its membership is available at <http://firstnet.gov/about/public-safety-advisory-committee>. To stay up-to-date on FirstNet activities, EMS personnel can track progress at www.firstnet.gov. Look for FirstNet representatives and displays at many EMS conferences around the nation.

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FirstNet®

FirstNet and Next Generation 9-1-1

WHAT IS THE FIRST RESPONDER NETWORK AUTHORITY (FIRSTNET)?

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Signed into law on February 22, 2012, the Middle Class Tax Relief and Job Creation Act created FirstNet. The law gives FirstNet the duty to ensure the building, deployment and operation of the first high-speed, nationwide wireless broadband network dedicated to public safety entities. FirstNet will ensure the provision of a single interoperable platform for public safety communications.

WHY WAS FIRSTNET CREATED?

The public safety community fought hard to fulfill the 9/11 Commission's recommendation and encouraged Congress to pass legislation establishing a dedicated, reliable network for advanced data communications nationwide. During emergencies, public safety personnel need true priority access and preemption, which are not available on commercial networks.

WHAT WILL BE POSSIBLE WITH THE FIRSTNET NETWORK?

The FirstNet network is intended to improve citizen and responder safety and increase the efficiency and effectiveness of emergency response through cutting edge broadband communications.

Our vision is that public safety personnel using the FirstNet network will be able to share applications, access databases, and provide better informed responses to incidents through integrated communications.

FirstNet's goal is to provide public safety-grade reliability and nationwide coverage so all public safety personnel can count on the network when they are on the job. FirstNet plans to create a nationwide standard of service while affording localized customization and control. When the FirstNet network launches, it will provide mission-critical, high-speed data services to supplement the voice capabilities of today's Land Mobile Radio (LMR) networks. Initially, the FirstNet network will be used for sending data, video, images and text. The FirstNet network will also carry location information and eventually support streaming video. FirstNet plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives.

WHAT IS NEXT GENERATION 9-1-1 (NG9-1-1)?

NG9-1-1 is a nationwide, standards-based, all-IP emergency communications infrastructure enabling voice and multimedia communications between a 9-1-1 caller and a 9-1-1 center. NG9-1-1 is designed as a managed system to provide access to emergency services from all connected communication sources. NG9-1-1 and the FirstNet network represent the two halves of the public safety request for service and the response.

HOW WILL THE FIRSTNET NETWORK INTEGRATE WITH NG9-1-1 NETWORKS?

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

HOW WILL THE FIRSTNET NETWORK BENEFIT PUBLIC SAFETY COMMUNICATIONS?

Implementing the vision of FirstNet is intended to provide a mission critical tool for our Nation's PSAPs. The creation of the FirstNet network will help to process, manage, and disseminate the flow of information coming into tomorrow's PSAP. The FirstNet network aims to provide the vital network connectivity between the PSAP and the first responders enabling the real time delivery of videos, photos and other high-speed data. The establishment of uniform non-proprietary standards will become crucial to insuring seamless interoperability.

FirstNet understands that rural coverage is an important part of the development and success of the NPSBN, and is required to meet substantial rural milestones in each phase of the network development.

FirstNet is committed to insuring that the concerns and interests of the public safety communications industry are being considered in the development and operation of the FirstNet network. To achieve this goal FirstNet has been working through the PSAC and with representative national associations. But, just as importantly, FirstNet is reaching out directly to the communications professionals who manage and staff the PSAPs.

WHAT WILL USERS PAY FOR FIRSTNET'S SERVICES?

While final costs have not been set, FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make FirstNet self-sustaining. The use of FirstNet's services and applications will be voluntary.

HOW CAN MY PSAP AND OTHER PUBLIC SAFETY COMMUNICATIONS AGENCIES PARTICIPATE IN THE DEVELOPMENT OF THE FIRSTNET NETWORK?

The Governor of each state and territory has designated a Single Point of Contact (SPOC) to gather local requirements for the network from each community, tribal region, and public safety entity. Communications personnel can provide input to FirstNet through the SPOC in your state. To identify the SPOC for your state and become involved, go to <http://firstnet.gov/consultation>. Communications personnel may also contact members of the FirstNet Public Safety Advisory Committee (PSAC). More information regarding the PSAC and its membership is available at <http://firstnet.gov/about/public-safety-advisory-committee>. To stay up-to-date on FirstNet activities, communications personnel can track progress at www.firstnet.gov. Look for FirstNet representatives and displays at many 9-1-1 conferences around the nation.

FirstNet Senior 9-1-1 Advisor

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FirstNet®

How will the FirstNet Network Work with Today's Land Mobile Radio Networks?

WILL THE FIRST RESPONDER NETWORK AUTHORITY (FIRSTNET) NETWORK REPLACE THE LAND MOBILE RADIO (LMR) NETWORKS PUBLIC SAFETY USES TODAY?

When the FirstNet network launches, it will provide mission-critical, high-speed data services to supplement the voice capabilities of today's Land Mobile Radio (LMR) networks. Initially, the FirstNet network will be used for sending data, video, images and text. The FirstNet network will also carry location information and eventually support streaming video. FirstNet plans to offer cellular voice communications such as Voice over Long Term Evolution (VoLTE) or other alternatives.

WHEN DOES FIRSTNET EXPECT TO OFFER MISSION CRITICAL VOICE OVER THE NETWORK?

As Mission Critical Voice (MCV) over LTE begins to be deployed internationally over the next couple of years, FirstNet will closely follow and learn from deployments in the United Kingdom, as an example, to facilitate our implementation. Based on the current pace of 3GPP developments, FirstNet could offer MCV as part of our baseline capability as early as phase 2 of the network's Initial Operating Capability (IOC), which is approximately one year after award. Of course, there are many factors at play that could affect this timeline and we will ensure the public safety community has a level of trust with the available MCV capabilities prior to deployment of it over the FirstNet network.

WHAT MAKES MISSION-CRITICAL VOICE DIFFERENT FROM CELLULAR-QUALITY OR COMMERCIAL-GRADE VOICE?

Today's LMR networks support push-to-talk, direct mode, and emergency call functionality. Public safety users typically communicate one-to-many instead of one-to-one. If the network fails, they also must be able to communicate with other responders in close proximity, so direct mode is critical. There are also performance requirements for mission-critical voice that address call set-up

WILL THE FIRSTNET NETWORK SHARE SITES WITH LMR NETWORKS?

The FirstNet network will leverage existing infrastructure where it makes engineering and economic sense. Our goal is to keep costs down and reduce the time it takes to build out the new Band Class 14 FirstNet network. Band Class 14 is the portion of spectrum allocated to public safety for operation of the FirstNet nationwide public safety wireless broadband network. Whether FirstNet shares sites with LMR networks will depend on the availability of space to house FirstNet equipment and whether the location proves to be the best option for meeting our network design, coverage, and cost requirements.

WILL THE FIRSTNET NETWORK CONNECT TO LMR NETWORKS?

In order to access one or more LMR networks, a dedicated handset must be within range of the specific towers within the frequency band on which it operates. Public safety personnel utilize a propriety subscriber unit and must sometimes carry multiple units to execute their daily mission. Headquarters personnel, ad hoc users or neighboring jurisdictions are routinely provided with units when needed for mutual aid. There are many solutions that will allow FirstNet users to improve efficiency by extending LMR access to smartphones, tablets and PCs. Through a simple Internet Protocol (IP) gateway, users will be able to transmit and receive voice traffic on any device that is authenticated to an LMR network via a Push to Talk (PTT) voice application.





FISCAL YEAR TO DATE ACTUALS
As of August 31, 2016

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

PRESENTED
September 29, 2016

TOPAZ

Operating and Maintenance Variance Analysis

Fiscal Year 2016 / 2017

Description	As of August 31, 2016					Comments
	Fiscal Year Budget	YTD Budget*	YTD Actuals	\$ Var From YTD Budget Increase/(Decrease)	% Var	
Personnel Services	492,000	75,692	65,161	(10,531)	-14%	Brand new equipment; less issues. Motorola is handling warranty work and maintenance through Oct 1.
Sub-total Personnel Services	\$492,000	\$75,692	\$65,161	(\$10,531)	-14%	
Insurance Premiums	10,600	-	-	-	0%	Decreased utilization of legal services for ARCRA over the last couple months Includes some PY expenses \$5K
Professional Services - Legal	37,000	6,167	-	(6,167)	-100%	
Temp Services	90,000	15,000	17,018	2,018	13%	Includes services for new microwave hop \$3850
Land Rental	24,600	15,000	14,724	(276)	-2%	
Professional Services - Other	13,100	2,183	5,300	3,117	143%	Continue to realize savings of 20% compared to FY2015
Professional Services - Consulting	10,000	1,667	-	(1,667)	-100%	
Utilities	72,500	12,083	7,304	(4,779)	-40%	
Telephone - Local	5,700	950	443	(507)	-53%	
Repairs & Maintenance Outside	10,400	1,733	98	(1,635)	-94%	
Equipment Usage (Vehicles)	20,000	3,333	1,193	(2,140)	-64%	
All Other Services	2,000	333	200	(133)	-40%	
Sub-total Services	\$295,900	58,450	\$46,280	(\$12,170)	-21%	
Contract - Preventative Motorola	645,000	645,000	653,104	8,104	1%	Annual increase on contract
Materials & Parts	37,600	6,267	2,474	(3,793)	-61%	
Non Cap Assets	60,000	10,000	13,265	3,265	33%	Battery installation, \$13K
Software Maintenance- Juniper	21,000	21,000	20,214	(786)	-4%	
All Other Commodities	1,000	167	-	(167)	-100%	
Sub-total Commodities	\$764,600	\$682,433	\$689,057	\$6,624	1%	
Subtotal O&M	1,552,500	816,576	800,498	(16,078)	-2%	
Contingency - 5% of total O&M	77,625	-	-	-	0%	
Total	\$1,630,125	\$816,576	\$800,498	(\$16,078)	-2%	

*YTD Budget represents 2 months of operational costs plus any contractual expenses already incurred (i.e. one time payments such as Insurance Premiums, Land Rental and Motorola Contract).

TOPAZ Regional Wireless Cooperative

Partner Allocations

Fiscal Year 2016/17

As of August 31, 2016

	Fiscal Year Budget	YTD Budget	YTD Billed	Variance Incease (Decrease)	% Var	Estimated Airtime	6 month Avg Airtime
Operations							
COM	1,179,721	590,956	590,662	(294)	0%	72.4%	73.0%
TOG	275,165	137,838	127,101	(10,737)	-8%	16.9%	16.3%
SFM	6,847	3,430	5,491	2,061	60%	0.4%	0.7%
CAJ	116,717	58,467	60,712	2,245	4%	7.2%	7.8%
TQC	4,890	2,450	2,650	200	8%	0.3%	0.3%
RVFD	326	163	160	(3)	-2%	0.0%	0.0%
SWA	10,596	5,308	5,203	(105)	-2%	0.7%	0.7%
AMR	2,608	1,307	1,040	(267)	-20%	0.2%	0.1%
FTM	33,255	16,658	7,479	(9,179)	-55%	2.0%	1.2%
Total	1,630,125	816,576	800,498	(16,078)	-2%	100%	100%

Capital Projects

COM	316,526	316,526	323,032	6,506	2%	73.0%	73.5%
TOG	73,828	73,828	69,215	(4,613)	-6%	17.0%	16.43%
SFM	1,837	1,837	3,017	1,180	64%	0.4%	0.66%
CAJ	31,316	31,316	33,055	1,739	6%	7.2%	7.86%
TQC	1,312	1,312	1,443	131	10%	0.3%	0.34%
RVFD	87	87	87	-	0%	0.0%	0.02%
FTM	8,922	8,922	3,979	(4,943)	-55%	2.1%	1.16%
Total	433,828	433,828	433,828	-	0%	100%	100%

VHF Special Assessment

VHF Capital

COM	457,923	9,470	4,966	(4,504)	-48%	66.9%	66.85%
TOG	128,849	2,665	1,398	(1,267)	-48%	18.8%	18.81%
SFM	55,554	1,149	603	(546)	-48%	8.1%	8.11%
TQC	39,251	812	426	(386)	-48%	5.7%	5.73%
RVFD	3,425	71	37	(34)	-48%	0.5%	0.50%
Total	685,000	14,167	7,430	(6,737)	-48%	100.0%	100.0%



**FOR THE YEAR ENDING
JUNE 30, 2016**

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

**PRESENTED
September 29, 2016**

TOPAZ

Operating and Maintenance Variance Analysis For the Year Ending June 30, 2016

Description	Budget	Actuals	\$ Var From Budget Increase/(Decrease)	% Var	Variance Explanations (over \$5,000/10%)
Personnel Services	476,955	508,301	31,346	7%	
Sub-total Personnel Services	\$ 476,955	\$ 508,301	\$ 31,346	7%	
Insurance Premiums - Agencies	10,600	8,094	(2,506)	-24%	
Professional Services - Legal	37,000	25,914	(11,086)	-30%	Intentional reduction of external legal council
Temp Services	90,000	94,298	4,298	5%	
Shaw Butte Land Rental	15,000	14,734	(266)	-2%	
Professional Services - Other	23,100	15,745	(7,355)	-32%	Included budget for Grant Writing, not utilized \$10K
Professional Services - Consulting	90,000	-	(90,000)	-100%	Budget for GWG and Fire Zone change orders; not utilized
Utilities	72,500	56,893	(15,607)	-22%	Savings due to more efficient cooling equipment; removal of some radio equipment and adjustments to the thermostats
Telephone - Local	5,700	5,151	(549)	-10%	
Repairs & Maintenance Outside	10,400	5,002	(5,398)	-52%	Budget is for unforeseen repairs; FY2015 actuals were \$8K
Equipment Usage (Vehicles)	20,000	20,282	282	1%	
All Other Services	2,000	100	(1,900)	-95%	
Sub-total Services	\$ 376,300	\$ 246,213	\$ (130,087)	-35%	
Contract - Preventative Motorola	629,000	646,216	17,216	3%	
Materials & Parts	17,600	8,369	(9,231)	-52%	Savings are offset in NonCap Assets
Non Cap Assets	50,000	60,623	10,623	21%	Includes 3 Battery installations
Software Maintenance- Juniper	21,000	20,214	(786)	-4%	
All Other Commodities	1,000	56	(944)	-94%	
Sub-total Commodities	\$ 718,600	\$ 735,478	\$ 16,878	2%	
Subtotal O&M	1,571,855	1,489,992	(81,863)	-5%	
Special Assessment: VHF Ops	12,500	24,292	11,792	94%	Federal Engineering contract extended past the end of the fiscal year
Total	\$ 1,584,355	\$ 1,514,284	\$ (70,071)	-4%	

TOPAZ Regional Wireless Cooperative

Partner Allocations

Fiscal Year 2015/16

As of June 30, 2016

	Fiscal Year Budget	YTD Budget	YTD Billed	Variance Incease (Decrease)	% Var	Estimated Airtime	6 month Avg Airtime
Operations							
COM	\$ 1,155,313	\$ 1,155,313	\$ 1,104,391	\$ (50,922)	-4%	73.5%	74.4%
TOG	274,760	274,760	250,017	(24,743)	-9%	17.5%	15.6%
SFM	7,545	7,545	7,346	(199)	-3%	0.5%	0.7%
CAJ	115,060	115,060	108,594	(6,466)	-6%	7.3%	7.5%
TQC	4,401	4,401	5,086	685	16%	0.3%	0.3%
RVFD	472	472	383	(89)	-19%	0.0%	0.0%
SWA	14,304	14,304	12,034	(2,270)	-16%	0.9%	0.7%
AMR	-	-	504	504	100%	0.0%	0.1%
FTM	-	-	1,637	1,637	100%	0.0%	0.7%
Total	1,571,854	1,571,854	1,489,095	(82,759)	-5%	100%	100%

Capital Projects

COM	\$ 2,276,961	\$ 2,276,961	\$ 2,288,741	\$ 11,780	1%	73.5%	75.0%
TOG	541,461	541,461	527,528	(13,933)	-3%	17.48%	15.72%
SFM	14,734	14,734	14,860	126	1%	0.48%	0.72%
CAJ	226,837	226,837	226,614	(223)	0%	7.32%	7.52%
TQC	8,595	8,595	10,835	2,240	26%	0.28%	0.34%
RVFD	920	920	929	9	1%	0.03%	0.02%
FTM	-	-	-	-	0%	0.00%	0.70%
Total	\$ 3,069,508	\$ 3,069,508	\$ 3,069,508	\$ (0)	0%	99%	100%

VHF Special Assessment

VHF O&M

COM	\$ 8,356	\$ 8,356	\$ 16,239	\$ 7,883	49%	66.9%	66.9%
TOG	2,351	2,351	4,569	2,218	49%	18.8%	18.8%
SFM	1,014	1,014	1,970	956	49%	8.1%	8.1%
TQC	716	716	1,392	676	49%	5.7%	5.7%
RVFD	63	63	121	59	49%	0.5%	0.5%
Total	\$ 12,500	\$ 24,292	\$ 24,292	\$ 11,792	49%	100.0%	100.0%

VHF Capital

COM	\$ 601,662	\$ 601,662	\$ 458,857	\$ (142,805)	-24%	66.9%	66.9%
TOG	169,249	169,249	128,972	(40,277)	-24%	18.8%	18.8%
SFM	73,028	73,028	55,607	(17,421)	-24%	8.1%	8.1%
TQC	51,598	51,598	39,288	(12,310)	-24%	5.7%	5.7%
RVFD	4,463	4,463	3,428	(1,035)	-23%	0.5%	0.5%
Total	\$ 900,000	\$ 900,000	\$ 686,151	\$ (213,849)	-24%	100.0%	100.0%

TOPAZ FY 2015-2016 JOINT VENTURE COST SHARING

DRAFT - REVISED

FISCAL YEAR 2014-2015	TOTAL	COM	TOG	SFM	CAJ	TQC	RVFD	FtM
FIXED ASSETS								
Cost	\$2,509,667	\$1,882,079	\$443,287	\$48,000	\$105,313	\$22,934	\$8,054	\$0
Accum Depreciation	(1,049,738)	(777,655)	(196,342)	(20,502)	(44,523)	(8,423)	(2,293)	-
Net Book Value	1,459,929	1,104,424	246,945	27,498	60,790	14,511	5,761	-
CWIP	1,800,000	1,353,042	295,671	8,354	135,667	6,720	546	-
NET BOOK VALUE-FIXED ASSETS	3,259,929	2,457,466	542,616	35,852	196,457	21,231	6,307	-

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	\$0
Accum Depreciation	(1,927,758)	(1,434,382)	(347,511)	(28,730)	(100,646)	(13,119)	(3,369)	-
Net Book Value	7,783,380	5,828,369	1,319,668	53,778	539,103	35,599	6,864	-
CWIP	686,151	458,857	128,972	55,607	-	39,288	3,428	-
Liability - Lease on Upgrade	(1,735,311)	(1,293,914)	(298,232)	(8,401)	(128,114)	(6,126)	(525)	-
NET BOOK VALUE LESS LIABILITIES	6,734,221	4,993,312	1,150,407	100,983	410,989	68,761	9,767	-
NET CHANGE IN EQUITY	3,474,292	2,535,846	607,791	65,131	214,532	47,530	3,460	-

FISCAL YEAR 2015-2016	TOTAL	COM	TOG	SFM	CAJ	TQC	RVFD	FtM
EQUITY RECONCILIATION								
Depreciation Expense	(\$878,020)	(\$656,727)	(\$151,169)	(\$8,228)	(\$56,123)	(\$4,696)	(\$1,076)	\$0
CWIP Additions	6,055,289	4,462,290	1,051,716	81,600	396,390	58,241	5,053	-
Reduction of CWIP	(7,169,138)	(5,356,475)	(1,218,415)	(34,347)	(532,057)	(25,673)	(2,171)	-
Fixed Asset Additions	7,201,471	5,380,672	1,223,892	34,508	534,436	25,784	2,179	-
Liability - Lease on Upgrade	(1,735,311)	(1,293,914)	(298,232)	(8,401)	(128,114)	(6,126)	(525)	-
NET CHANGE IN EQUITY	\$3,474,292	\$2,535,846	\$607,791	\$65,131	\$214,532	\$47,530	\$3,460	\$0

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

DRAFT -REVISED

	% Split	Cost	Accum Depreciation	Net Book Value
CITY OF MESA:				
Infrastructure	74.9%	\$6,449,855	(\$753,091)	\$5,696,764
Machinery & Equipment	73.7%	\$812,896	(\$681,291)	\$131,605
Total	74.88%	\$7,262,751	(\$1,434,382)	\$5,828,369
TOWN OF GILBERT:				
Infrastructure	16.9%	\$1,452,589	(\$166,320)	\$1,286,269
Machinery & Equipment	18.7%	\$214,590	(\$181,191)	\$33,399
Total	16.95%	\$1,667,179	(\$347,511)	\$1,319,668
SUPERSTITION FIRE & MEDICAL				
Infrastructure	0.7%	\$62,179	(\$11,083)	\$51,096
Machinery & Equipment	1.5%	\$20,329	(\$17,647)	\$2,682
Total	0.69%	\$82,508	(\$28,730)	\$53,778
CITY OF APACHE JUNCTION				
Infrastructure	7.0%	\$588,670	(\$59,036)	\$529,634
Machinery & Equipment	5.3%	\$51,079	(\$41,611)	\$9,468
Total	6.93%	\$639,749	(\$100,646)	\$539,103
TOWN OF QUEEN CREEK				
Infrastructure	0.5%	\$41,330	(\$6,787)	\$34,543
Machinery & Equipment	0.6%	\$7,388	(\$6,332)	\$1,056
Total	0.46%	\$48,718	(\$13,119)	\$35,599
RIO VERDE FIRE DISTRICT				
Infrastructure	0.1%	\$8,246	(\$1,636)	\$6,610
Machinery & Equipment	0.1%	\$1,987	(\$1,733)	\$254
Total	0.09%	\$10,233	(\$3,369)	\$6,864
Ft McDowell				
Infrastructure	0.0%	\$0	\$0	\$0
Machinery & Equipment	0.0%	\$0	\$0	\$0
Total	0.00%	\$0	\$0	\$0
TOTAL				
Infrastructure	100.0%	\$8,602,869	(\$997,952)	\$7,604,917
Machinery & Equipment	100.0%	\$1,108,269	(\$929,806)	\$178,463
Total	100.0%	\$9,711,138	(\$1,927,758)	\$7,783,380

TOPAZ
CWIP AND PLANT ADDITIONS
FISCAL YEAR 2015-2016

DRAFT-REVISED

	FISCAL YEAR 2014-2015							
CWIP PROJECT	COM	TOG	SFM	CAJ	TQC	RVFD	FtM	TOTAL
Topaz System Upgrade	\$1,353,042	\$295,671	\$8,354	\$135,667	\$6,720	\$546	\$0	\$1,800,000
TOTAL CWIP	\$1,353,042	\$295,671	\$8,354	\$135,667	\$6,720	\$546	\$0	\$1,800,000

	Current Year Activity							
CWIP PROJECT	COM	TOG	SFM	CAJ*	TQC	RVFD	FtM	TOTAL
Topaz System Upgrade	\$4,003,433	\$922,744	\$25,993	\$396,390	\$18,953	\$1,625	\$0	\$5,369,138
VHF	\$458,857	\$128,972	\$55,607	\$0	\$39,288	\$3,428	\$0	\$686,151
TOTAL CWIP	\$4,462,290	\$1,051,716	\$81,600	\$396,390	\$58,241	\$5,053	\$0	\$6,055,289

	Current Year Plant Additions							
CWIP PROJECT	COM	TOG	SFM	CAJ	TQC	RVFD	FtM	TOTAL
Topaz System Upgrade	(\$5,356,475)	(\$1,218,415)	(\$34,347)	(\$532,057)	(\$25,673)	(\$2,171)	\$0	(\$7,169,138)
TOTAL CWIP	(\$5,356,475)	(\$1,218,415)	(\$34,347)	(\$532,057)	(\$25,673)	(\$2,171)	\$0	(\$7,169,138)

	FISCAL YEAR 2015-2016							
CWIP PROJECT	COM	TOG	SFM	CAJ*	TQC	RVFD	FtM	TOTAL
Topaz System Upgrade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
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

*The City of Apache Junction is not participating in the VHF project.

Date: September 29, 2016

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. This funding for this project is shown in the TRWC budget. Below are project milestones:
 - a. Complete
 - i. Contract awarded to Motorola Solutions on September 28, 2015
 - ii. First payment of \$600,000, was made on November 12, 2015
 - iii. Second payment of \$600,000, was made on September 8, 2016
 - b. Upcoming
 - i. Frequency acquisition, TBD, in progress. Applications have been filed with the Federal Communications Commission for the proposed frequencies.
 - ii. Equipment ordering, TBD, dependent on completion of frequency acquisition.
 - iii. Equipment staging at Motorola Solutions in Illinois, TBD.
 - iv. Site preparation, TBD.
 - v. Shipment of equipment from Motorola Solutions in Illinois, TBD.
 - vi. Installation of equipment at sites, TBD
 - vii. Optimization & testing of equipment, TBD
 - viii. Acceptance testing, TBD
 - ix. System Acceptance, TBD

Motorola Solutions Inc. will be providing a more detailed update as part of this meeting.

Non-capital Projects

- 1) **Site Battery Lifecycle Upgrade.** The batteries that back up the TOPAZ voice radio network and other equipment at the remote radio sites and the City of Mesa Communications Building are 14 years old. These batteries have reached the end of their service life. Normally, these batteries only power the equipment for less than a minute while the emergency generator starts and picks up the load to power the equipment. However, we size these batteries to power the site for a minimum of 4 hours in the event the emergency generator does not start, so we have time to take the portable generator to the site to provide power.
 - a. The battery replacement plan is as follows:
 - i. CRS, scheduled for September 22, 2016 (FY17 budget)
 - ii. South Water Plant, December, 2016 (FY17 budget)

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- b. The batteries at the following sites have been replaced.
 - i. Superstition Fire & Medical Station 262, October 9, 2014
 - ii. Superstition Fire & Medical Station 264, December 16, 2014
 - iii. Twin Knolls South, February 24, 2015
 - iv. FS205, July 28, 2015
 - v. EMSC, October 13, 2015
 - vi. Twin Knolls North, December 8, 2015 (funded by Maricopa County site colocation)
 - vii. TRW, January 5, 2016 (funded by Maricopa County site colocation)
 - viii. Falcon Field, April 5, 2016
 - ix. Communications Building, April 12, 2016
 - x. Range Rider, August 3, 2016, (FY17 budget)
- 2) **Florence Gardens TOPAZ site.** We are utilizing some of the equipment removed from Thompson Peak when that site was upgraded to create a 4-channel TOPAZ 800 MHz trunked site at the Florence Gardens site near Florence, AZ. This will enable the City of Mesa Gas Utility to communicate with resources in Mesa when they are providing service in the Magma Gas Service Area without manually switching their radios. In the future, this will benefit TOPAZ members when traveling to the Pinal County Jail. This site is planned to begin operation in October, 2016.

Operations Summary

Unscheduled Impairments – Please see the unscheduled impairments chart on page 3. Since the last Administrator update on March 3, 2016, there were seven unscheduled impairments to the network, as follows:

- 1) April 26, 2016. The simulcast cell went into “site trunking” for 3 minutes, 16 seconds due to human error. We have updated procedures regarding work on the TOPAZ network to eliminate this source of problems in the future.
- 2) May 23, 2016 and May 26, 2016. The Range Rider site was out of service 57 seconds and 36 seconds, respectively, due to TOPAZ data network problems caused by an intermittent equipment failure. The defective equipment has been replaced, and a network configuration change was made to improve resiliency in future failures.
- 3) May 28, 2016. The Twin Knolls, Fire Station 262, and Fire Station 264 sites were out of service for 1 hour, 17 minutes, and 42 seconds due to a network equipment problem. This problem was corrected by a firmware update applied to the network equipment in August, 2016.
- 4) August 3, 2016. The Mesa Community College site was out of service for 45 seconds due to a network equipment problem. A configuration setting will be changed in the near future to correct this problem.
- 5) August 14, 2016. The Range Rider, TRW, Fire Station 262, Fire Station 264, and South Water Plant sites were experiencing problems on the control channel for 5 hours, 15 minutes, and 6 seconds. The problem was radio frequency interference or corrupted data on the infrastructure to field unit over-the-air control channel path, probably caused by one or more of the TOPAZ sites. There were no data network or TOPAZ network alarms to indicate this problem was occurring. The cause of the problem remains under investigation.

TRWC Administrator Update, September 29, 2016

- 6) August 15, 2016. The Range Rider site was out of service for 3 minutes, 12 seconds due to heavy rain at the site disrupting both microwave paths.

Airtime and Radio Counts – the following charts are included:

- 1) Six month rolling average airtime usage by member for fiscal year 2016, and fiscal year 2017 through August, 2016.
- 2) Average number of radios enabled by member for fiscal year 2016, and fiscal year 2017 through August, 2016.
- 3) Six month rolling average airtime usage by service type for fiscal year 2016, and fiscal year 2017 through August, 2016.
- 4) Average number of radios enabled by service type for fiscal year 2016, and fiscal year 2017 through August, 2016.

Peak Channel Usage – the following charts are included:

- 1) Peak channel usage for each site for February, 2016, through August, 2016 is shown on the graphs at the end of this report. The following table is a summary of all channels in use:

Month	Simulcast Cell	Thompson Peak	Shaw Butte
February, 2016	1	0	4
March, 2016	2	0	9
April, 2016	1	0	6
May, 2016	2	0	0
June, 2016	0	0	1
July, 2016	0	0	4
August, 2016	0	0	3

- a. Although all channels were in use on several occasions as shown above, no system busies have been reported.
- b. Since the Shaw Butte site consistently has all channels in use, we are going to install the spare equipment for the Shaw Butte site to provide a 6th operational channel. We have had few to no equipment failures with the equipment at the Shaw Butte site, and will simply revert the site to the current compliment of 5 channels in the event of an equipment failure.
- c. It should be noted the peak loading on the TOPAZ simulcast cell is decreasing due to moving the City of Mesa non-Public Safety users (to date, the Transportation Department and the Environmental & Sustainability Department) off the TOPAZ network and on to a commercial-grade radio system operated in partnership with Mesa Public Schools.

Upcoming Events:

- 1) Testing of Dynamic Site Resiliency (backup radio master site) and geo-redundant prime site (simulcast) capability is planned for December, 2016.
- 2) The next City of Mesa Communications Building (quarterly) simulated power outage testing is planned for 5:00 AM on October 12, 2016.

Other News:

- 1) **Potential Point-to-Point Microwave Radio Interference.** Higher Ground LLC, a mobile satellite earth station startup business, has applied to the Federal Communications Commission (FCC) for a nationwide license to operate mobile satellite earth station transmitters in the 6 GHz radio

TRWC Administrator Update, September 29, 2016

frequency band. This 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 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’s application to the FCC requests 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.

The City of Mesa, as the licensee for the point-to-point microwave radio network utilized by the TRWC and other City of Mesa data network services, is filing an objection to this application with the FCC. The TRWC Board of Directors may wish to approve the Executive Director to file similar comments on behalf of the TRWC to reinforce the objections to this application based on its potential for interference with Public Safety communications. A draft of the proposed objection to be filed with the FCC is on the following two pages.

DRAFT

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Higher Ground LLC)	File No. SES-LIC-20150616-00357
)	Call Sign E150095
Application for a Blanket License)	
to Operate C-band Mobile Earth)	
Terminals)	

TOPAZ REGIONAL WIRELESS COOPERATIVE PETITION TO DENY

The TOPAZ Regional Wireless Cooperative (TRWC)¹ is opposed to Higher Ground LLC's (HG) proposed use of frequencies in the 5925-6425 MHz band for mobile earth stations. The TRWC is concerned that HG's use of these frequency's will cause potentially harmful interference to the fixed microwave communications facilities which would affect mission critical two-way radio traffic. The TRWC strongly objects to the grant of the application/filing by Higher Ground (E150095).

The TRWC's Public Safety radio communications system depends heavily on the microwave communications network to provide highly reliable connectivity between our 911 dispatch operations and the Public Safety's simulcast radio system operations.

¹ The Cities of Mesa and Apache Junction, the Towns of Gilbert and Queen Creek, the Superstition Fire & Medical District, the Rio Verde Fire District, and the Fort McDowell Yavapai Nation have established the Topaz Regional Wireless Cooperative (TRWC). The TRWC Region covers over 320 square miles in the Southeast Phoenix/Mesa Standard Metropolitan Statistical Area and represents over 750,000 citizens. Within this area there are 263,917 households, 20,239 businesses and 175 community anchor institutions (schools, hospitals, clinics, etc.). The TRWC network itself connects 21 public safety agencies (Law Enforcement, Fire/Rescue, Emergency Medical, and Emergency Management), Mesa Community College, Mesa Public Schools and the City of Phoenix. The function of the TRWC, through the implementation of the TRWC Governance Process, is to jointly operate a regional radio system that is modern in its management, has equity in membership, and provides for support and future growth. The City of Mesa is a license holder in the 5925-6425 MHz band with 51 mission critical public safety microwave sites throughout the East valley (Phoenix metro area), with 11 microwave paths that are licensed in the proposed band. <http://www.topazrwc.org/Home.aspx>

TRWC Administrator Update, September 29, 2016

The TRWC is concerned that the granting of HG's proposal, without further scrutiny and the opportunity for widespread public comment, could cause harmful interference to Public Safety radio communications system. Any interference from the proposed mobile earth stations would be very difficult to detect and correct, and could potentially jeopardize the safety of our First Responders and citizens.

The TRWC only very recently learned about Higher Ground's proposal through a copy of the July, 2016 notification letter to an adjacent agency from Commsearch.

We depend upon the frequency coordination and filing process to protect our critical licensed microwave links for Public Safety from interference.

The TRWC requests that the Commission deny the HG application and waiver request and allow the matter to instead be studied under the full scrutiny of a rulemaking proceeding.

Sincerely,

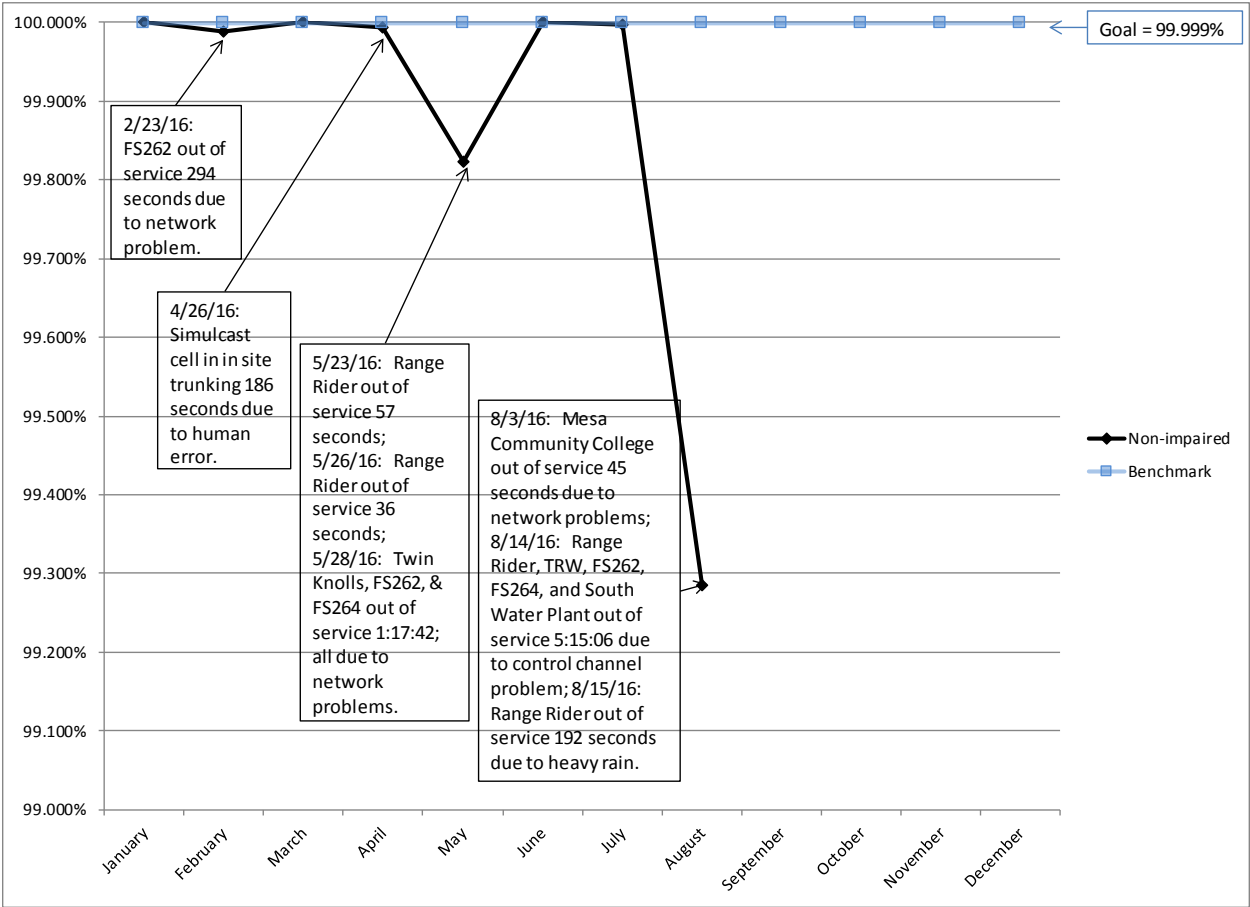
/s/ Dale Shaw

Dale Shaw

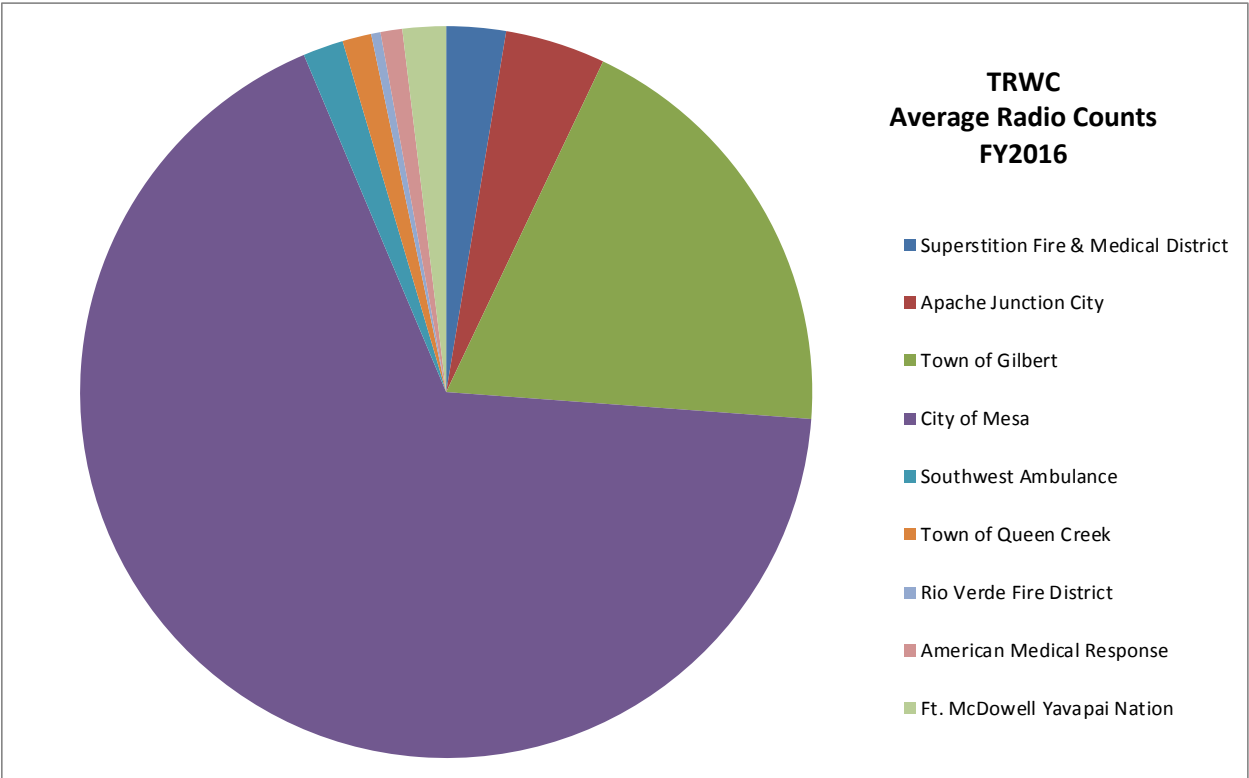
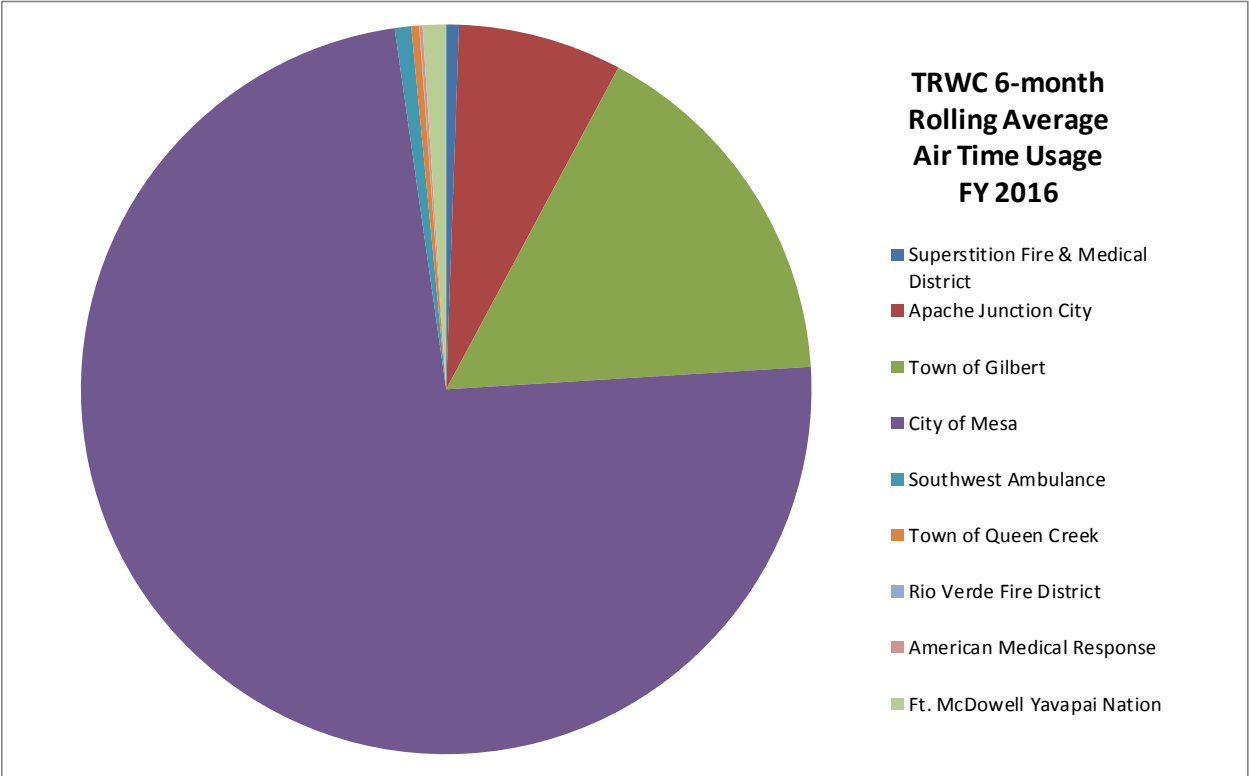
TRWC Executive Director

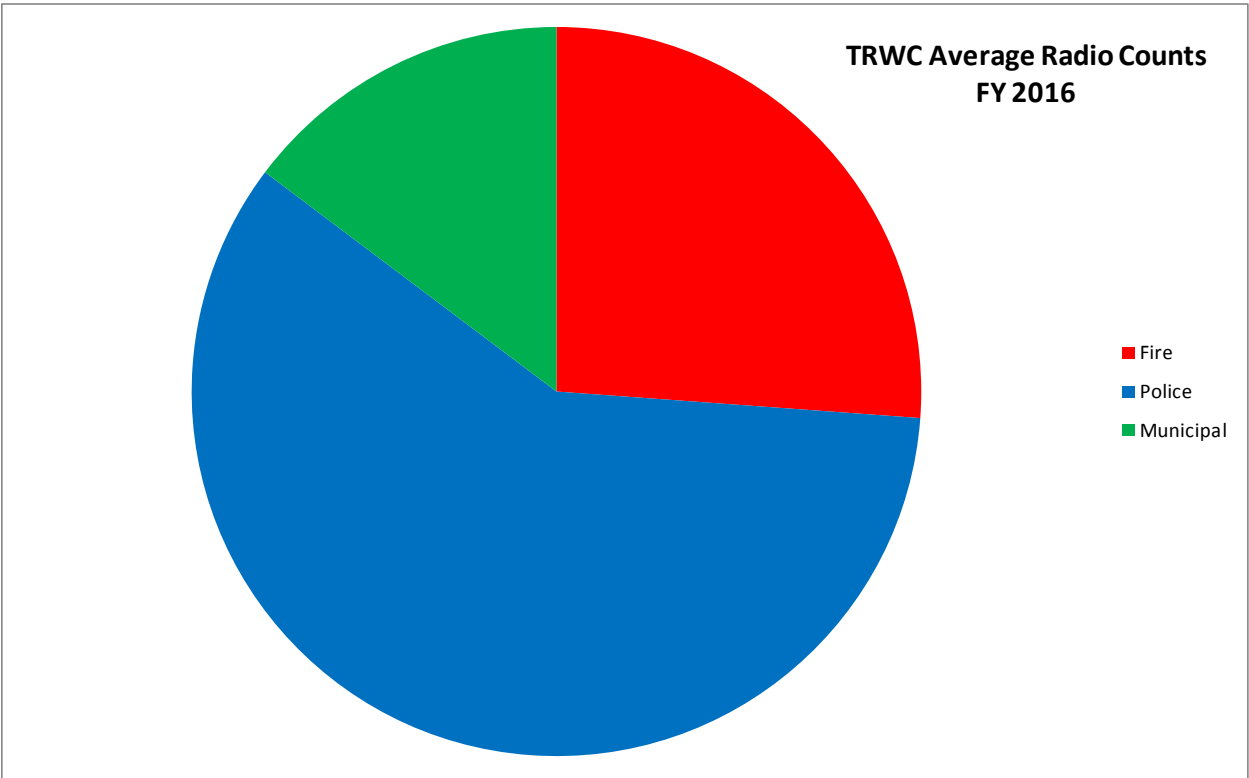
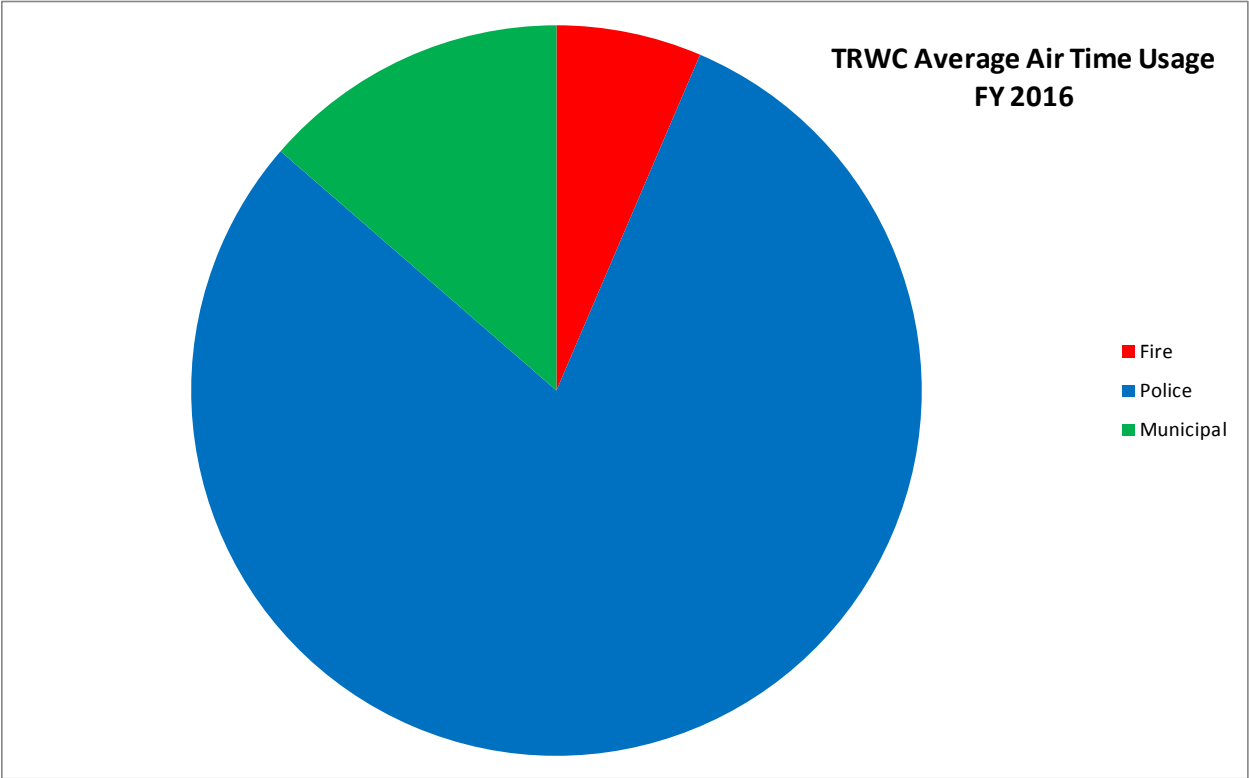
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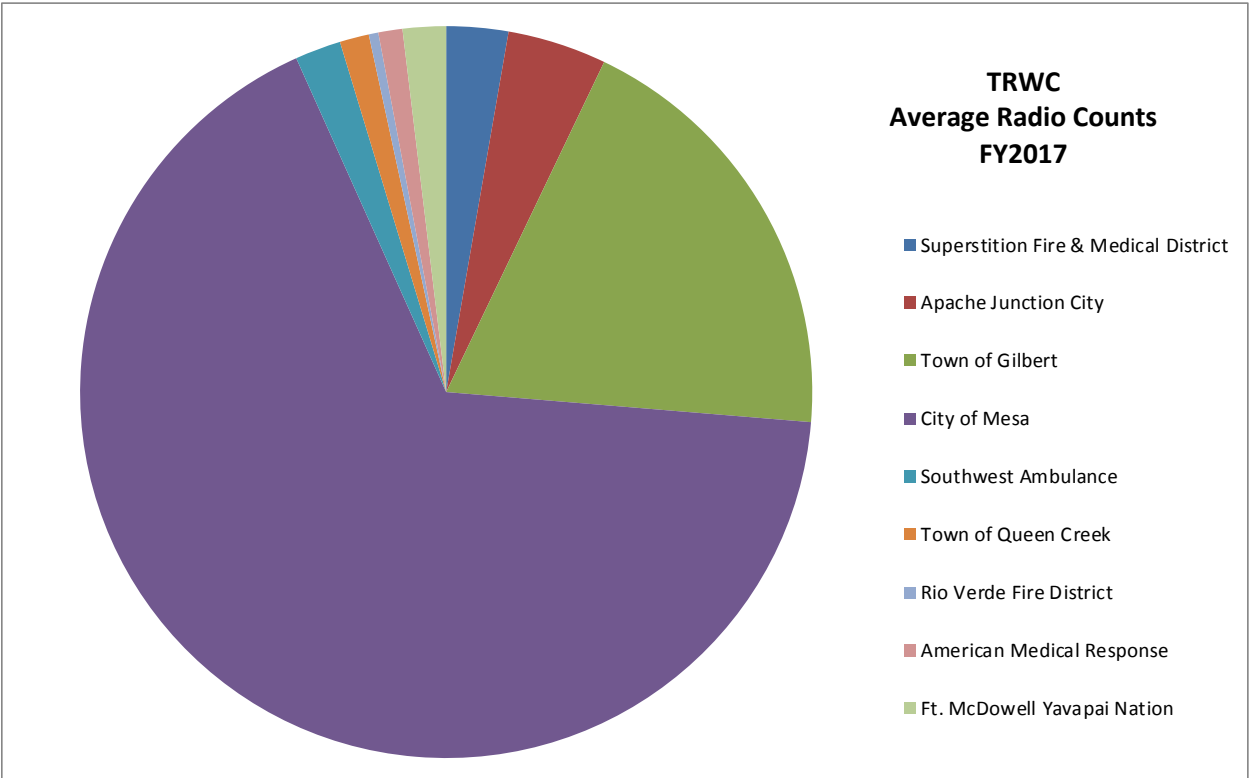
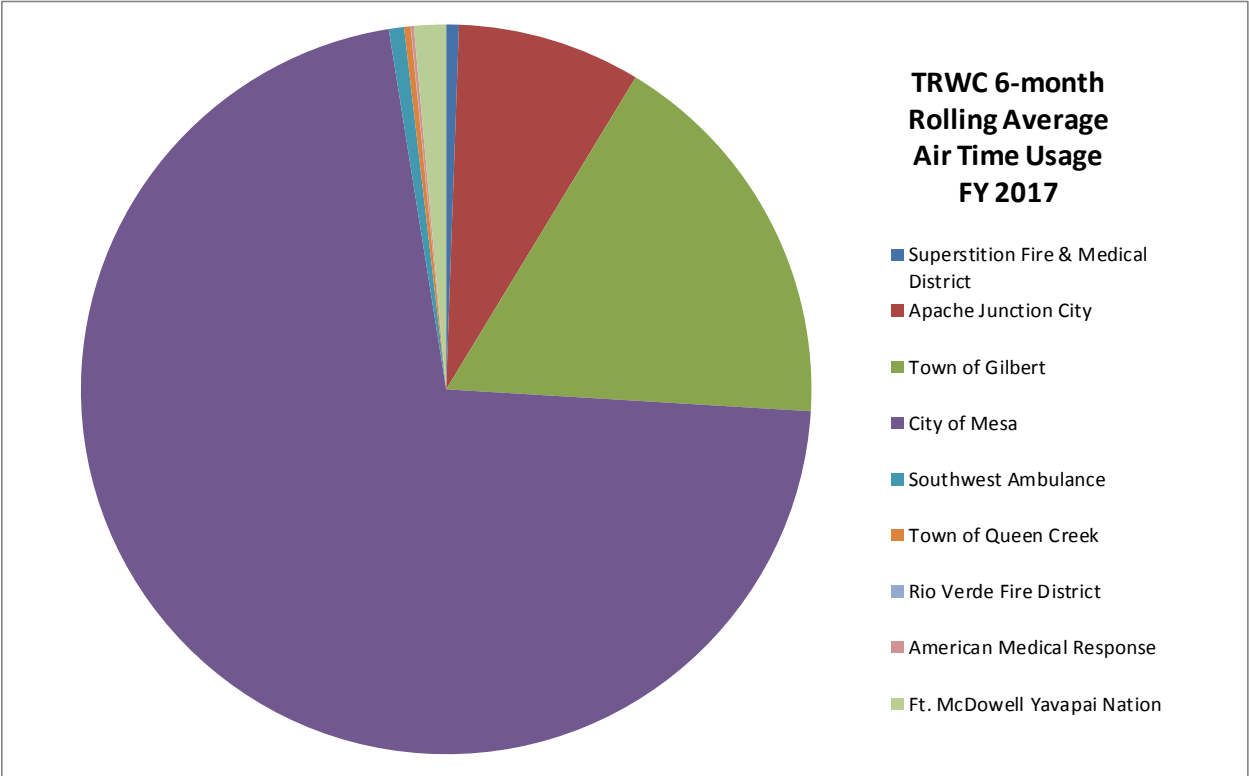
TRWC Administrator Update, September 29, 2016

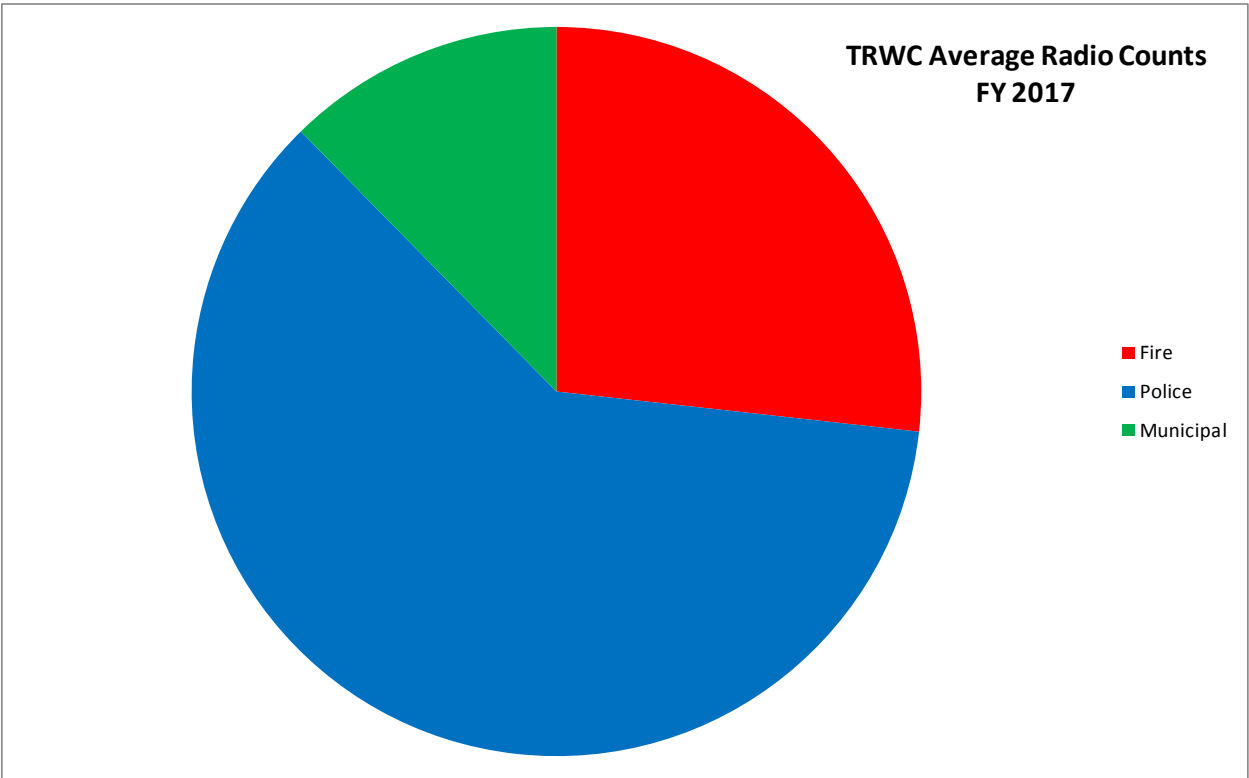
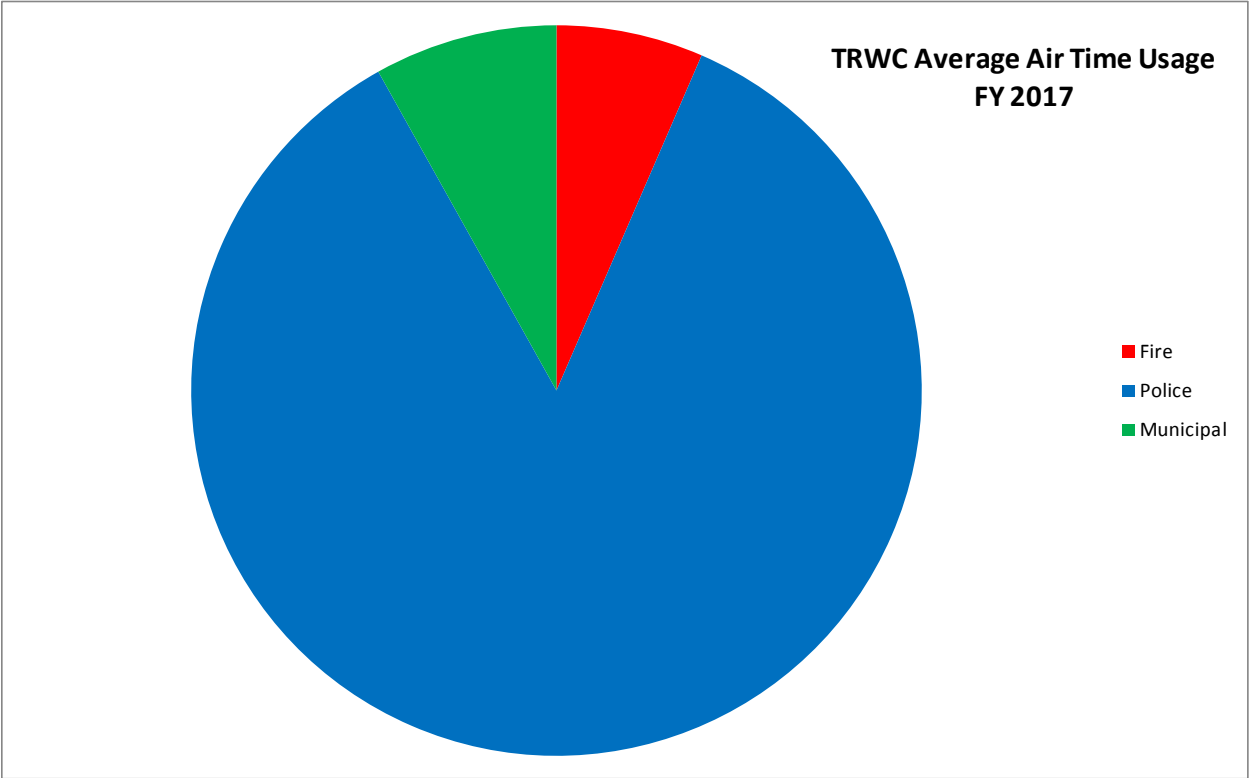


Unscheduled System Impairment, January, 2016 through August, 2016

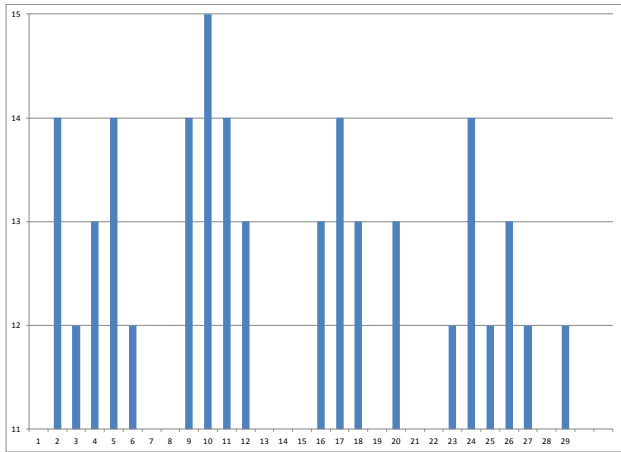




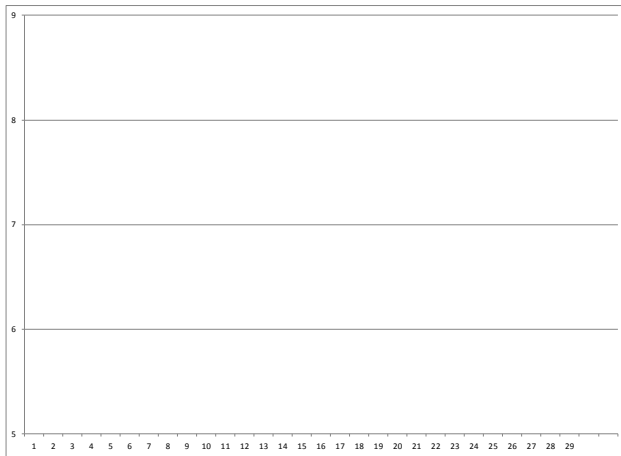




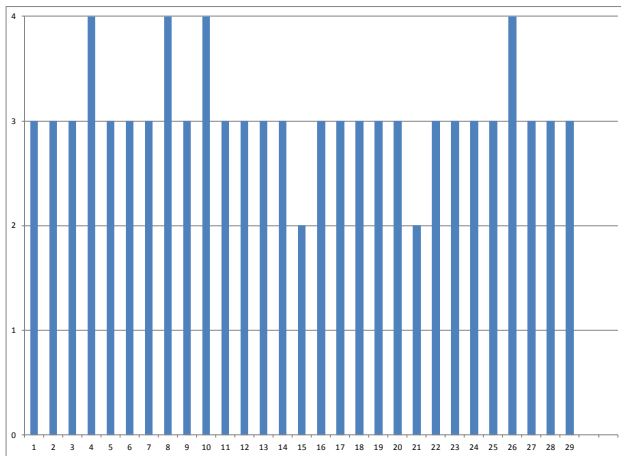
TOPAZ Peak Channel Usage, February, 2016



Simulcast Cell



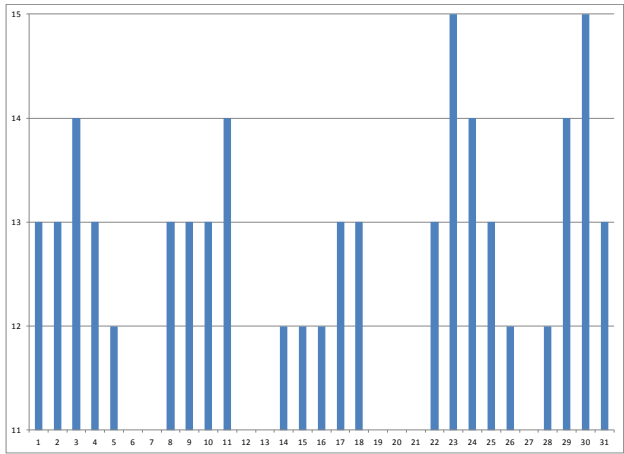
Thompson Peak



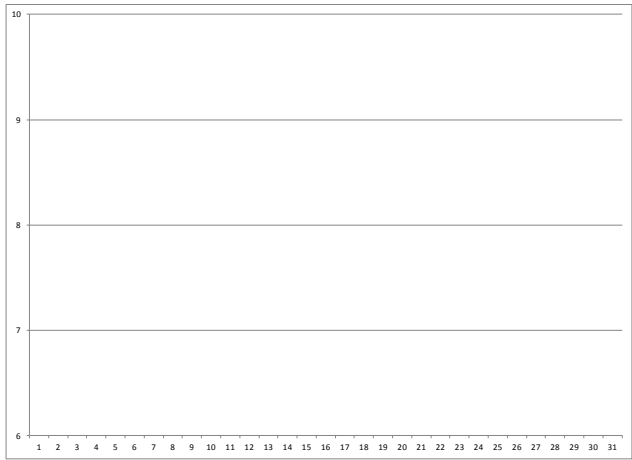
Shaw Butte

TRWC Administrator Update, September 29, 2016

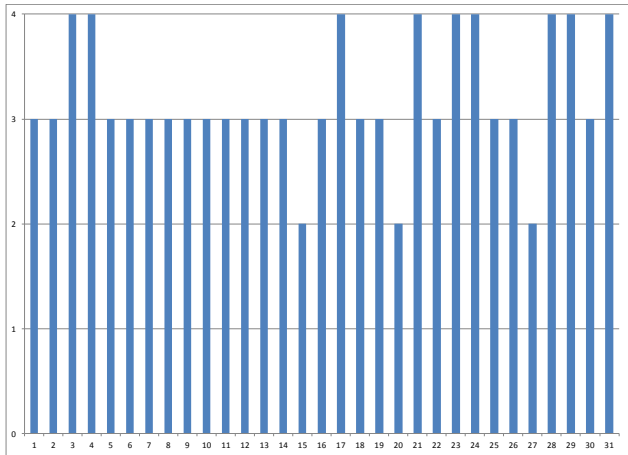
TOPAZ Peak Channel Usage, March, 2016



Simulcast Cell



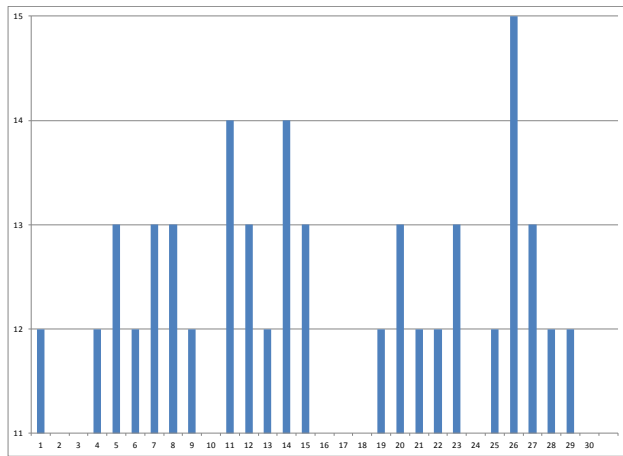
Thompson Peak



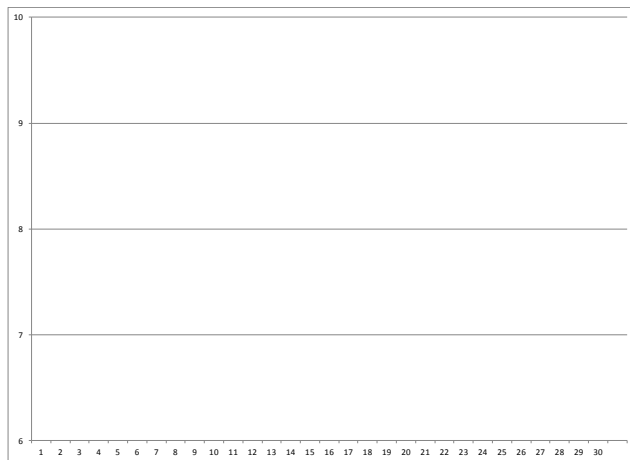
Shaw Butte

TRWC Administrator Update, September 29, 2016

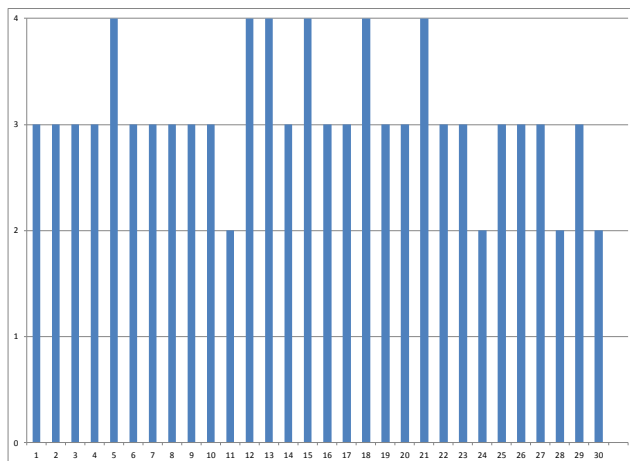
TOPAZ Peak Channel Usage, April, 2016



Simulcast Cell

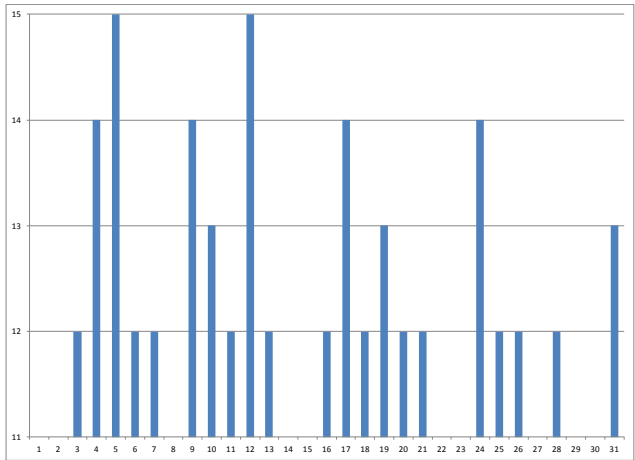


Thompson Peak

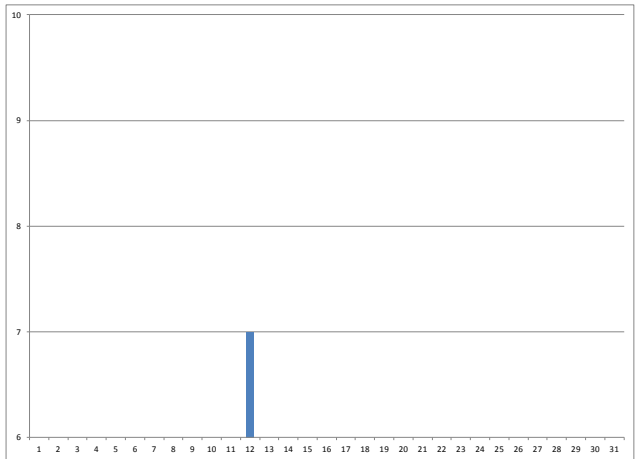


Shaw Butte

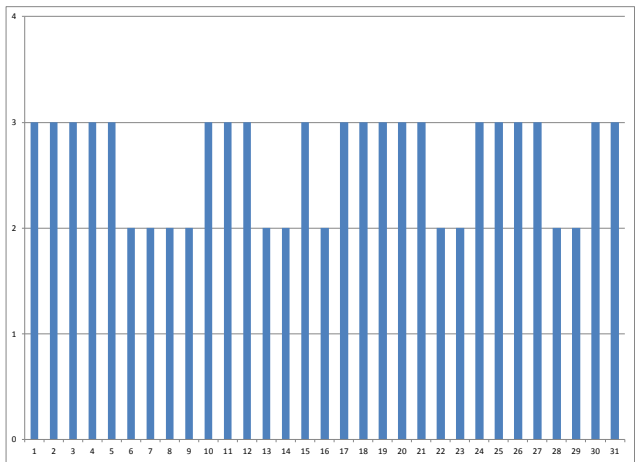
TOPAZ Peak Channel Usage, May, 2016



Simulcast Cell

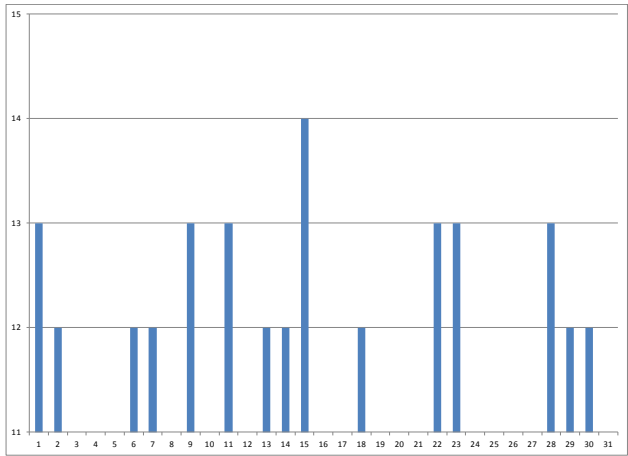


Thompson Peak

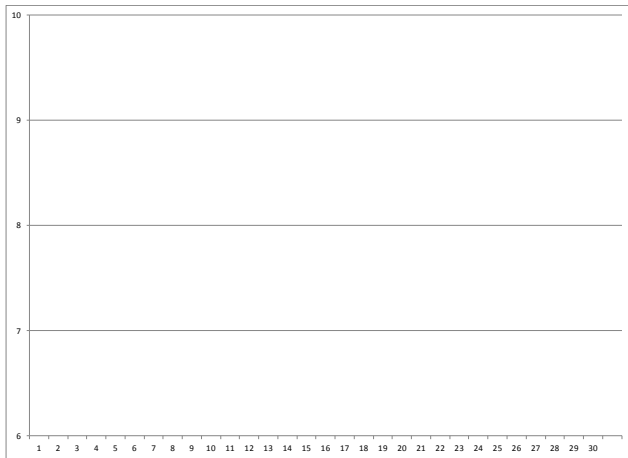


Shaw Butte

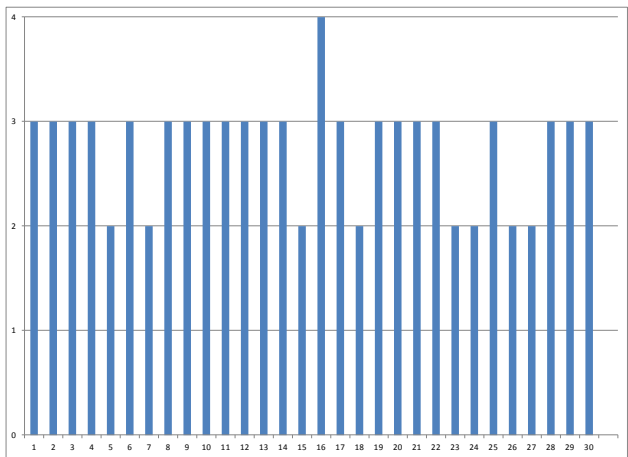
TOPAZ Peak Channel Usage, June 2016



Simulcast Cell

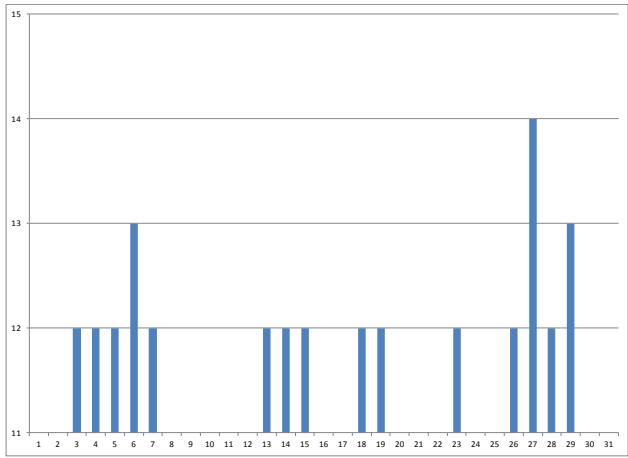


Thompson Peak

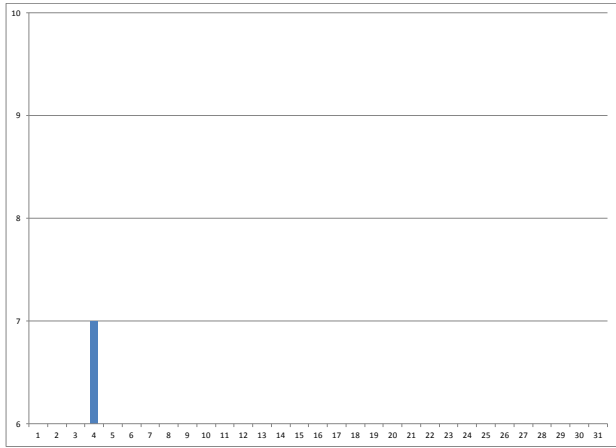


Shaw Butte

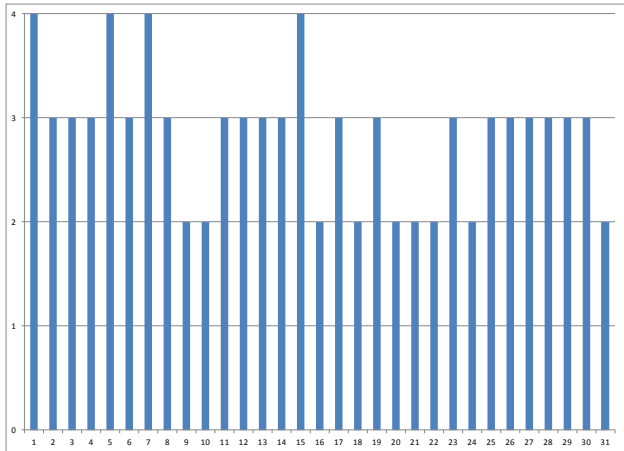
TOPAZ Peak Channel Usage, July, 2016



Simulcast Cell

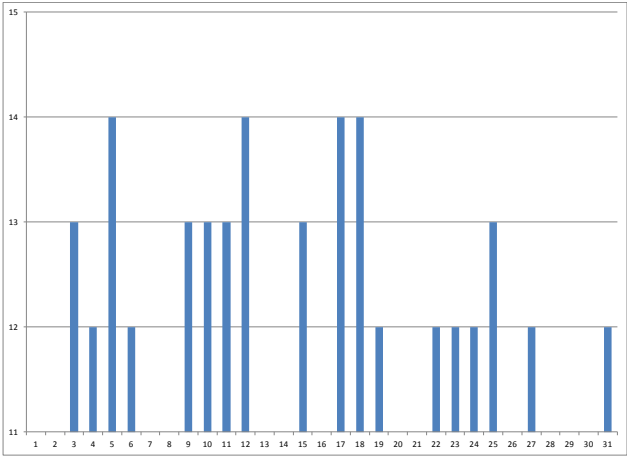


Thompson Peak

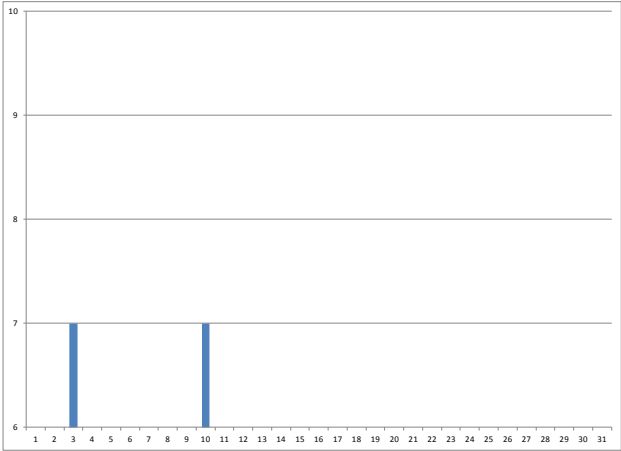


Shaw Butte

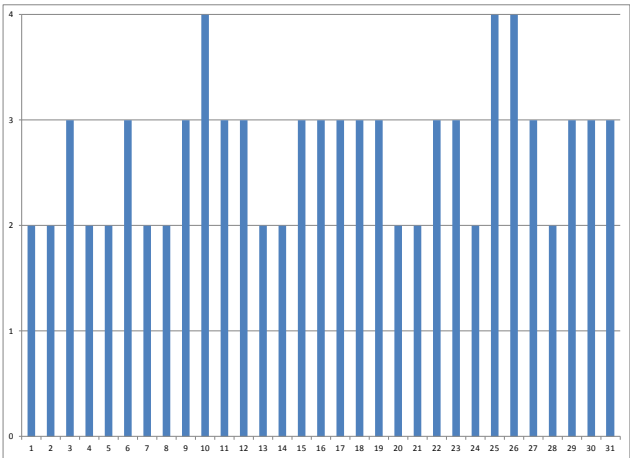
TOPAZ Peak Channel Usage, August, 2016



Simulcast Cell



Thompson Peak



Shaw Butte