



Regional Wireless Cooperative

Board of Directors

Agenda

May 26, 2011

	<b>ITEM</b>	<b>PRESENTER</b>
1)	<b>Call to Order and Roll Call</b>	Chair Meyer – Tempe
2)	<b>Approval of Meeting Minutes from March 24, 2011</b>  <b>This item is for information, discussion and action.</b>	Chair Meyer – Tempe  Est. 2 min.
3)	<b>Associate Policy</b> The purpose of this item is to request approval of the Associate Policy and to present a draft of the accompanying letter agreement. <b>This item is for information, discussion and action.</b>	Mr. David Felix – RWC  Est. 5 min.
4)	<b>Subscriber Unit (Radio) Rate</b> The purpose of this item is to present and request approval of the subscriber unit rate for the 2011/2012 RWC budget. <b>This item is for information, discussion and action.</b>	Mr. Tahir Alhassan – RWC  Est. 10 min.
5)	<b>Transition Status of Chandler and Scottsdale</b> The purpose of this item is to update the Board on Chandler’s transition to the RWC and the status of Scottsdale’s cutover date. <b>This item is for information only.</b>	Mr. Marc Walker – Chandler / Mr. Brad Hartig – Scottsdale  Est. 5 min.
6)	<b>Federal Communications Commission (FCC) Mandates</b> The purpose of this item is to present an update regarding FCC mandates, which includes Time Division Multiple Access (TDMA). <b>This item is for information and discussion.</b>	Mr. David Felix – RWC Executive Director  Est. 10 min.
7)	<b>TRWC Talkgroup Usage and Joint Executive Committee Meeting Update</b> The purpose of this item is to provide the status of the TRWC’s talkgroup usage on the RWC system and a request for an extension, an update regarding the joint Executive Committee meeting and to present a proposed cost model for a Customer classification. <b>This item is for information, discussion and action.</b>	Mr. David Felix – RWC Executive Director / Mr. Bill Phillips – Phoenix  Est. 25 min.
8)	<b>RWC Lifecycle Planning and TDMA Conversion</b> The purpose of this item is to present a general timeline with regards to RWC Lifecycle planning and a potential TDMA conversion. <b>This item is for information and discussion.</b>	Mr. David Felix – RWC Executive Director / Mr. Bill Phillips – Phoenix  Est. 20 min.

9)	<b>Call to the Public</b>  <b>This item is for information only.</b>	Chair Meyer – Tempe  Est. 1-5 min.
10)	<b>Announcements</b> The purpose of this item is to communicate any Board announcements and the date of the next Board Meeting: July 28, 2011 from 10:00 – 11:30 a.m. <b>This item is for information only.</b>	Chair Meyer – Tempe  Est. 1 min.
11)	<b>Adjourn</b>	Chair Meyer - Tempe



**Board of Directors  
MINUTES  
March 24, 2011**

Phoenix City Council Chambers  
200 West Jefferson Street  
Phoenix, Arizona 85003

**Board Members Present**

Wade Brannon**	Chad Dragos	Shannon Tolle*
Mark Brown	David Fitzhugh	Paul Wilson
Carol Campbell*	Jim Heger	Ed Zuercher
Steven Campbell	Charlie Meyer	
Wayne Clement	David Neuman*	
Steven Conrad**	Susan Thorpe	

**Board Members Absent**

Mike Frazier  
Bob Costello  
Brad Hartig  
Jim Haner  
Patrick Melvin  
Marc Walker

\*Board Alternate

\*\*Non-Voting Board Representative

**Staff and Public Present**

Tahir Alhassan	Jesse Cooper	Jen Hagen	Mike Rall
Leif Anderson	Theresa Faull	Lonnie Inskeep	John Rowan
Rick Barte	David Felix	Rick Kolker	Vicky Scott
Brenda Buren	Bill Fleming	Doug Mummert	Dale Shaw
Jim Case	John Gardner	Chris Nadeau	Mike Ullman
Dave Clarke	Joe Gibson	Cy Otsuka	Tim Ulery
Dave Collett	Loretta Hadlock	Bill Phillips	Tim Van Scoter

**1. Call to Order**

Chair Meyer called the meeting to order at 10:04 a.m. and announced the following new members and alternate representatives:

- Board Member Mr. Campbell replacing Mr. Frazier – City of El Mirage
- Board Member Mr. Frazier replacing Mr. Schott – City of Surprise
- Board Alternate Mr. Brannon for Mr. Melvin – City of Maricopa
- Board Alternate Mr. Tolle for Mr. Hartig – City of Scottsdale
- Board Alternate Ms. Campbell for Mr. Frazier – City of Surprise

**2. Approval of the Meeting Minutes from January 27, 2011**

Chair Meyer asked if the Board had any questions or changes to the minutes; none were received. No amendments were made and the minutes were approved.

### 3. **Glendale Membership**

Chair Meyer explained that the Glendale City Council approved and signed the Intergovernmental Agreement (IGA) for Glendale to join the RWC.

Mr. Felix thanked Mr. Conrad for his hard work to bring Glendale's membership to fruition, including working with the technical challenges of Glendale's transition, specifically in reference to the stadium.

Mr. Conrad expressed that Glendale's transition was long overdue and he was glad to be here this day. He commended the RWC staff for assistance in providing information needed to make good and careful decisions. He stated that the Glendale City Council approved entering into the IGA on February 22, 2011. He explained that Glendale was working with Motorola regarding the necessary upgrades required to join the system. He added that on March 22, 2011, Glendale City Council approved the contract with Motorola. He expressed that he was looking forward to working with all the Members and formally requested Glendale's membership to the RWC.

Chair Meyer conveyed his thanks to Mr. Conrad for his hard work to make Glendale's membership possible and stated that the issue of interoperable public safety communications was taken very seriously and having Glendale as a formal participant was a forward movement towards better public safety communications for the entire Valley.

A **MOTION** was made by Vice-Chair Thorpe and **SECONDED** by Mr. Fitzhugh to approve Glendale's RWC membership request. **MOTION CARRIED UNANIMOUSLY.**

### 4. **Interoperability Participant Policy**

Mr. Felix presented that the purpose of the policy was to formalize the way an Interoperability Participant can come onto the network. He stated that, in most cases, signed agreements with Interoperability Participants were not on file; therefore, staff would begin obtaining formal agreements from the various participants. He explained that Interoperability Participants would be sent a notice making them aware of the new policy along with a template letter agreement for signature. He stated that the letter agreement would define what Interoperability Participants were authorized to do and what limitations existed. He provided an example that Interoperability Participants should not assume use of dispatch services. He added that such specifics would be articulated in a letter for the Interoperability Participant's signature acknowledgment.

Vice-Chair Thorpe referenced Section 7.4 in the policy, and suggested that limitations such as no dispatch services be included in the policy so that the information would be uniform and consistent in RWC documents, rather than

contained in a letter to an individual participant. Mr. Felix replied that the template letter, which serves a companion document to the policy, covered the concern raised; however, he could take the policy back to the policy committee for further review.

Chair Meyer conveyed that he understood Vice-Chair Thorpe's concerns for the need to have a consistent guideline that applied to all. He stated that often times when a policy is adopted it can be promulgated by administrative guidelines which advance the policy to a more detailed level. He added that administratively, with the Executive Committee, those kinds of guidelines can be developed and promulgated and shared with the Board but not necessarily adopted, thus avoiding the need for future amending by the Board.

Mr. Felix responded that he would bring the template back to the next meeting so the Board could review it, as he believed it addressed the concern raised. He added that the template provided the detailed requirements and limitations for use of the system for Interoperability Participants.

Referencing again Section 7.4 of the policy, Vice-Chair Thorpe recommended language to address that no disruption of RWC Member operations be allowed by an Interoperability Participant; Members take priority and others come second in regards to operations. She added that because interoperability does not usually include encryption, perhaps the RWC should be charging agencies who want that additional service, since it was not a standard in the interoperability procedure.

Mr. Felix responded that language concerning these issues may already be in the template; however, he would review the template for verification. He added that this item could be brought back with the template to a future Board meeting.

A **MOTION** was made by Mr. Conrad and **SECONDED** by Ms. Campbell to approve the Interoperability Participant Policy with the understanding that a document addressing the issues raised by Vice-Chair Thorpe would be forthcoming at a subsequent meeting. **MOTION CARRIED UNANIMOUSLY.**

## **5. TRWC Talkgroup Usage and Joint Executive Committee Meeting Update**

Mr. Phillips reported that traffic had dropped off on the TRWC talkgroups since December and although some traffic had moved to interoperable channels, it too had dropped off. He added that the busy hour usage had also come down.

Chair Meyer questioned the reason for the drop in usage. Mr. Phillips responded that although it was difficult to know why, it may be that the TRWC was limiting some operations while the two groups were still in discussions for a final solution. Mr. Felix added that he believed that since the Joint Executive Committee (EC) meetings with the TRWC, awareness of interoperability usage and how it was defined, awareness of self-policing, and users being better educated have contributed to the drop in usage.

Chair Meyer inquired whether Mr. Felix believed that there was a drop in usage as a result of a conscious decision to reduce use rather than there having been a spike in use due to a particular police operation that has now ceased. Mr. Felix replied in the affirmative.

Mr. Phillips stated that a second Joint EC meeting was held on March 10, 2011. He stressed that interoperability existed with the TRWC and that had never been an issue; the main point being addressed was how to handle direct operations of one entity working on the other entity's system. He explained that the Joint EC, in determining what constituted interoperability, added intermittent to the definition. He stated that the Joint EC defined intermittent as sporadic use that was generally weeks not months. He noted that the definition was left flexible to address special circumstances on a case-by-case basis.

Mr. Phillips explained that the Joint EC discussed taskforces and whether their use would be considered intermittent. He stated that Federal taskforces have become an everyday occurrence that often last for years or with no defined deadline. He added that they often take an officer or two from different jurisdictions and embed them in the taskforce for the whole duration of time; therefore, the question becomes whether this would be interoperable communications or the operations of that taskforce. He explained that the Joint EC had not yet settled on that issue.

Mr. Felix stated that he was attempting to have a discussion with a central Federal coordinator to see if there was a single way to address all their needs instead of dealing with each agency individually. He explained that, at present, the Federal agencies do not fund the communications component of their taskforces, thus this was usually never addressed.

Chair Meyer inquired whether Mr. Felix was attempting to get one voice to speak for multiple Federal agencies. Mr. Felix responded in the affirmative. He stated that he was in the early stages of discussions and has reached out to Mr. Burke in the Attorney General's Office, who had regular Federal head meetings.

Mr. Zuercher joined the meeting at this time.

Mr. Phillips reviewed the business needs for operational use of another entity's system. He explained that Fire interacts daily with its counterparts in other jurisdictions and that a Fire unit, when dispatched, was under the control of the dispatching agency whether it was the RWC or TRWC. He stated that the joint committee established a technical team to look at various solutions to meet the identified business requirements. He reviewed a wide range of solutions and expressed that implementation of the technical piece would not be the problem area; the challenge would be how to establish what would be fair and equitable and how to set up a cost model for billing.

Vice-Chair Thorpe inquired of the timeline when a final recommendation would be brought to the Board. Mr. Phillips responded that the Joint EC was working with the June 2011 deadline in view; however, if a new customer class was established, a modification to the Intergovernmental Agreement may be required and resigning by Members likely would not be completed by June.

Mr. Campbell inquired whether the solutions were in awareness of other systems (e.g. Yuma system); hence, if an Urban Areas Security Initiative (UASI) team needed to roll out from the Maricopa County area and into other areas that all these processes would create a continual communication element. Mr. Phillips responded that those issues were being looked at from a global perspective; however, this particular solution was for operational use. He explained that the interoperability solution was a little different and the UASI teams put those processes and procedures in place. He added that the Inter Radio Frequency Subsystem Interface (ISSI), a system of systems statewide, was a possible solution but currently had a lot of administrative overhead. He stressed that this particular problem was the operational piece and not the interoperable piece.

No action was taken.

#### 6. **RWC Auditor Section Update**

Mr. Alhassan reported that nine solicitation requests were sent to various auditors on the City of Phoenix's Qualified Vendor List and the response was as follows: three had no response, three declined, and three submitted proposals. He explained that Clifton Gunderson, LLP was the recommended choice based on the firm's experience with joint ventures, the audit hours were in line with other similar audits, and the firm's familiarity with SAP, the City of Phoenix accounting system. He expressed that although Henry and Horne had the lowest overall fee, the firm did not have experience with joint ventures and the proposed audit hours were believed to be underestimated. He stated that the timeline for the audit would be a kickoff meeting in July, field work in October, and final review and audit opinion in November. He added that the audit budget was short \$3,500 but would be realigned in the fall to accommodate the difference.

Mr. Felix stated that the Executive Committee was briefed by Mr. Alhassan and it was in concurrence with his recommendation.

A **MOTION** was made by Mr. Zuercher and **SECONDED** by Vice-Chair Thorpe to approve staff's recommendation of the auditor selection of Clifton Gunderson, LLP. **MOTION CARRIED UNANIMOUSLY.**

#### 7. **Associate Member Billing**

Mr. Felix explained that at a prior Board meeting, a question was raised whether direct billing to for-profit entities, and in this case ambulance companies, would compromise the tax-exempt status of bond money used in building the RWC

system. He explained that the issue was reviewed by the Phoenix Law Department and the following summarized the legal opinion:

- a. An ambulance company may not use nor purchase, from the City, radios that were originally obtained by the City through bond money.
- b. An ambulance company may be charged Operations & Maintenance (O&M) only.
- c. O&M charges may not be applied towards upgrades to the RWC network.
- d. The O&M should be calculated based upon an ambulance company's proportionate Operations & Maintenance cost of the RWC network.
- e. The RWC may direct bill an ambulance company for O&M, or an RWC Member may bill an ambulance company for O&M; however, Law recommends being as consistent as possible and that ideally the RWC do the billing.
- f. Referring to an ambulance company as an "Associate Member" is not consistent with the governance and should be replaced with the term "Associate".

Mr. Heger inquired if the billing would be on a per radio basis. Mr. Felix confirmed that the calculation was based on that formula; however, it would be billed as the Associate's proportionate use of the system.

In response to questions by Chair Meyer, Mr. Felix replied that he had not heard from any Members who would prefer to do their own billing. He added that it was administratively more burdensome for Members to perform their own billing and affirmed that it was more beneficial for the RWC to assume the billing.

Chair Meyer, referencing letter "a" above, recognized that although the advice was from the City of Phoenix Law Department, it could be applied to individual Members; therefore, he inquired that if cities allowed these affiliates to purchase from them radios, was there anything that needed to be done or were Board Members being advised to take the information back to their respective jurisdictions. Mr. Felix replied that the information had already been disseminated through the Operations Working Group and the Board Members; however, information could continue to be provided.

No action was taken; this item was for information and discussion.

**8. RWC Lifecycle Planning and Federal Communications Commission (FCC) Mandates Briefing for 800 MHz Re-Banding and 700 MHz Narrow-Banding**

Mr. Felix introduced this item stating that the re-banding/narrow-banding mandates had significant financial implications to the RWC. He expressed that the issue was being worked on from several different areas; however, it was important to bring it to the Board's attention. He recapped a discussion he had with representatives from the Regional Planning Committee (RPC), which was a group that addressed FCC mandates and strategies of how to move forward.



Mr. Phillips presented that the FCC was mandating that 800 MHz frequencies be re-banded in order to move public safety frequencies closer together to eliminate interference from commercial cellular carriers. He stated that Sprint/Nextel was financing the project, although our region was on hold pending a US treaty with Mexico.

He further explained that narrow-banding was when channels are cut in half and the existing space was used to create more channels to provide more capacity for systems throughout the nation. He stated that the FCC had an unfunded mandate that narrow-banding occur on the 700 MHz frequencies by 2017. He expressed that national discussions were occurring that included extending the deadline or eliminating the mandate for areas in the country where plenty of 700 MHz frequencies existed.

In response to a question by Chair Meyer, Mr. Phillips replied that we could be one of those parts of the country, as there were plenty of frequencies.

In response to a question by Vice-Chair Thorpe regarding the rationale behind the mandate, Mr. Phillips replied that the amount of spectrum available was fixed and as communications was growing so was the demand for spectrum.

Mr. Phillips stated that in planning for this mandate, equipment being purchased today was narrow-band capable but would require a software upgrade. He explained the need to change protocols from Frequency Division Multiple Access (FDMA) to Time Division Multiple Access (TDMA) because a single talkgroup could not talk on multiple subsystems on two different protocols (FDMA and TDMA), which defeats the purpose of having a wide area interoperable communications system.

In response to a question by Chair Meyer, Mr. Phillips replied that TDMA separates the frequency band into channels, and each frequency channel is separated into two timeslots, and each timeslot can carry one conversation. He explained that wide area roaming forces one protocol or the other, and the FCC mandate requires TDMA on 700 MHz; therefore, it necessitates the whole system to convert.

Mr. Phillips reviewed the Lifecycle issues and future products that would become obsolete with or without the FCC mandate and the related costs. He stated that there was no manufacturer, other than Motorola, that had TDMA capable radios. He expressed that moving the mandate deadline may: (1) allow time for competitor manufacturers to develop a products which could mean lower costs, and (2) allow more time to spread out the costs. He explained that an option may exist to forgo re-banding the 800 MHz and negotiate a buy-out from Sprint/Nextel and thus apply the buy-out funds to the 700 MHz narrow-banding and TDMA.

Vice-Chair Thorpe inquired whether the first two bulleted items totaling \$40M dollars (depicted on the slide) were the RWC costs and other two bulleted items were individual Member costs. Mr. Phillips replied in the affirmative.

Mr. Phillips reviewed the Members' radio counts and estimated subscriber costs at \$6,500 per radio. He added that agencies depicting no costs were because radios counts were still being obtained from Fire districts.

Mr. Tolle inquired whether the costs were based on the 6000 or 7000 model APX. Mr. Phillips replied that it was an average rough cost. He added that municipal user radios were less expensive than public safety radios.

Mr. Phillips summarized that without the FCC mandate the timeline for subscriber replacements could be extended beyond 2017, and he recommended filing in support of any existing extensions or filing to set aside the mandate entirely, thus not converting to TDMA.

In response to a question by Chair Meyer, Mr. Phillips affirmed that the filing would be done with the FCC.

Mr. Felix expressed that he had a conference call with the Chair of the National Regional Planning Committee, Steve Devine, and local representative Mark Schroeder to discuss the reality of the 2017 deadline. He added that Phoenix's Office of Government Relations participated in the call in the event the RWC requests assistance from the congressional delegation. He relayed that it was possible that the date may move to 2019 or that the mandate may not occur at all. He stated that other states have already submitted filings and the RWC's filing may include signatures from each Board Member. He noted that Mr. Devine was performing research of what other states have done.

Vice-Chair Thorpe inquired for clarification whether the possibility existed that nationally the conversion would not need to occur or just our region. Mr. Felix responded that dense areas such as New York City may need to do the conversion; however, it may not be applicable to the Southwest. He added that nationwide the mandate could change, but we would be asking for a waiver for our region.

Mr. Phillips explained that the RWC could move to 700 MHz, perform the hardware changes, and remain FDMA, thus the cost to replace subscriber units could be spread out. He added that more hardware would be needed than converting to TDMA; however an analysis would be performed. He stated that this report was for information and in the future the Executive Committee would put forth its recommendation.

Vice-Chair Thorpe commended Mr. Phillips for his use of the graphics in the presentation, as it explained the information well.

Chair Meyer commented that he believed the RWC should move forward with an extension or waiver request. He added that most agencies fund these types of projects as capital projects and that capital funds were based on an agency's ability to issue debt. He stressed that in these economic times moving deadlines out two years could make a big difference.

Chair Meyer inquired whether the TRWC was in the same situation as the RWC. Mr. Phillips responded that the TRWC has both 800 MHz and 700 MHz frequencies, although the RWC has more split subsystems.

Chair Meyer commented that he believed the TRWC and RWC deliver a unified message in regards to the mandate. Mr. Felix responded that the two Executive Committees were prepared to have this discussion so that we have a unified approach.

Mr. Wilson stated that the change in technology was an area to consider with regards to the potential waiver request. He added that the TRWC was pursuing Long Term Evolution (LTE) broadband and since agencies need voice radios and text that this should be part of the technology on future radios. Mr. Phillips agreed and added that one reason there had not been a lot of action or concern with the 2017 deadline was due to the focus on the D Block and LTE. He commented that although LTE technology is ready for data communications and may one day be a solution for voice communications, it still had a long way to go for the latter, and was further out into the future.

No action was taken; this item was for information and discussion.

**9. Call to the Public**

None.

Vice-Chair Thorpe made two announcements:

- a. Mr. Roy Minter from Denton, Texas was selected as Peoria's new Police Chief.
- b. Mr. Mark Nichols, Peoria's Fire Training Chief will be the new Fire Chief for Daisy Mountain Fire Department.


**10. Next Meeting: May 26, 2011; 10:00 – 11:30 a.m.**

Chair Meyer announced the date of the next meeting.

**11. Adjournment**

Chair Meyer adjourned the meeting at 11:20 a.m.

Respectfully submitted,  
Theresa Faull, Management Assistant I

REGIONAL WIRELESS COOPERATIVE POLICIES AND PROCEDURES	
	No. X-XX-R0
Subject: RWC Associate Policy	Effective Date 2/16/11

### 1.0 Purpose

- 1.1. Defines a policy to form a relationship between the Regional Wireless Cooperative (RWC) and Associates in order to facilitate operations in a production environment.

### 2.0 Owner

- 2.1. RWC Operations Working Group (OWG)

### 3.0 Applies To

- 3.1. This applies to RWC contracting Members and Associates requesting the use of the operational capabilities within the RWC.

### 4.0 Background

- 4.1. The network has evolved and the number of operability requests has increased, RWC Members may need to communicate with Associates.

### 5.0 Policy Statement

- 5.1. The RWC Governance and IGA provide a definition of Associate. This policy outlines the application process and responsibilities.

### 6.0 Supporting Rules

- 6.1. An entity may become an Associate if they are contractually obligated to provide service to a Member.
- 6.2. An entity must apply to become an Associate if they are **both** 1) contractually obligated to provide service to a Member and 2) provide their own subscribers units.
- 6.3. Associates do not have RWC voting rights
- 6.4. Associates may have a representative on the OWG.
- 6.5. Associates do not have representation on the Board of Directors.
- 6.6. Categories of membership are specifically defined in Exhibit A of the RWC IGA, Section 3.1.2.

## **7.0 Responsibilities**

- 7.1. Requests or updates to become an Associate must be submitted to the RWC Executive Director on agency letterhead.
- 7.2. Submissions must include:
  - 7.2.1. Agency name and single point of contact
  - 7.2.2. Supporting letter(s) from all RWC contracting Member(s) including dates of contract.
  - 7.2.3. RWC Subscriber Inventory form.
  - 7.2.4. The authorized service provider or entity that will program the subscribers
  - 7.2.5. Talk group plan to program into subscribers, including encryption
  - 7.2.6. Purpose of request
  - 7.2.7. Signature of authorized agency representative
  - 7.2.8. Signed form acknowledging requirements to follow identified RWC Policies and Procedures
- 7.3. The Executive Director will provide the OWG a written summary of the application packet to include:
  - 7.3.1. Requesting Associate
  - 7.3.2. Contracting Member(s)
  - 7.3.3. Talk group plan
  - 7.3.4. Purpose of request
  - 7.3.5. Number of subscribers/users
- 7.4. The OWG is responsible for advising the Executive Committee of recommendations or issues related to potential RWC Associates
  - 7.4.1. RWC costs incurred beyond standard interoperability offerings will be the responsibility of the Associate or the Member.
  - 7.4.2. The talk group plan will be approved by the OWG.
  - 7.4.3. The control and programming of the programming materials into subscriber units must be approved by the OWG.
- 7.5. The Executive Committee will forward the recommendation to the Board of Directors through the Executive Director.
- 7.6. The Board of Directors will approve, deny or request additional information.
- 7.7. The Executive Director will contact the Associate regarding approval status and provide them with:
  - 7.7.1. The approved talk groups and/or interoperability decks.
  - 7.7.2. RWC invoice, if applicable.
- 7.8. The RWC will follow up with all Associate to provide an updated subscriber list annually.

## **8.0 Conditions for Exemption or Waiver**

- 8.1. As approved by the RWC Board of Directors

## **9.0 Applicable Documents:**

- 9.1. RWC Intergovernmental Agreement and RWC Governance Documents



Date

Organization Name  
Addressee Name  
Address  
City, State Zip

Dear Mr. / Ms. Name:

The purpose of this letter is to advise you that the Regional Wireless Cooperative's (RWC) Board of Directors has approved (name of agency) as an Associate. Associates have no RWC voting rights or representation on the Board of Directors or the Executive Committee, but may have representation on the Operations Working Group (OWG).

The Operations Working Group (OWG) has authorized the use of (insert # of radios) approved radios on the (insert name of specified talkgroups) talkgroup as specified on the attached document. The following are provided for your information regarding authorizations and limitations associated with these subscriber units' (radios) future operation, maintenance and impact on the RWC system:

1. This request will not include any access to secure talkgroups. All talkgroups contained in the permitted "code plug" are non-secure and thus open to monitoring by the general public. No encryption key support will be provided with this request.
2. No emergency alert access is permitted for the approved subscriber units.
3. No page function is permitted for the approved subscriber units.
4. There is no independent dispatch support provided for your participants. While interactions with dispatchers may occur, neither any RWC public safety dispatch center nor the RWC assume any responsibility for providing dispatch services to your participants unless coordinated and approved in advance. Additionally, there are no guarantees of response or performance on behalf of dispatch personnel when monitoring talkgroups. Reliance for operational dispatch services should be performed on your agency channels and supported by your staff.
5. Radios which have been lost, stolen, misplaced or security compromised, can present significant hazards to operational personnel. Therefore, subscriber units

that are lost, stolen, or misplaced must immediately be reported to the RWC so the ID can be inhibited (deactivated). Furthermore, the RWC reserves the right to inhibit any radio suspected of interfering with public safety operations.

6. The approved subscriber units may only be used when working in support of an RWC member. RWC talkgroups are not permitted to be used for your agency-specific communications needs without prior RWC approval.
7. As an RWC Associate, your agency is responsible for the purchase, maintenance, replacement, and programming of your subscriber equipment. The RWC may perform services for your agency with an approved contract, or by an authorized service provider. As technical or operational changes are made by RWC members, it is your responsibility to reprogram subscriber units with updated talkgroup plans or code plugs along with any associated costs. After a reasonable period of time, RWC radio IDs are subject to deactivation until the requested updates are completed by your agency.
8. The RWC will bill your agency at the prevailing Operations and Maintenance (O&M) fee per radio. The O&M fee is subject to change upon RWC Board approval.
9. This agreement is in effect based on the current RWC Governance Agreement Document. Future modifications could subject your agency to additional fees, programming or operational protocol changes. Your agency will be notified prior to any alternations to this agreement so that you may evaluate continued participation based on the modified agreement.
10. This agreement may be terminated either at the discretion of the RWC or if your agency no longer supports public safety services with an existing RWC member.

Please contact Mr. Todd Rogers to obtain your approved radio template. He can also answer questions about radio programming and advise you on those individuals or vendors who are approved to perform same. He may be reached at 602-262-6743, or by e-mail at [Todd.Rogers@Phoenix.gov](mailto:Todd.Rogers@Phoenix.gov).

Sincerely,

David A. Felix  
Executive Director  
Regional Wireless Cooperative

By signing below, you acknowledge that you are authorized to sign on behalf of your agency and that your agency will abide by the terms and conditions set forth in this letter.

Signature	Title	Date
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Date

Organization Name  
Addressee Name  
Address  
City, State Zip

Dear Mr. / Ms. Name:

The purpose of this letter is to advise you that the Regional Wireless Cooperative's (RWC) Operations Working Group (OWG) has authorized the use of (insert # of radios) approved radios on the RWC Interoperability talkgroups as specified on the attached document.

The following are provided for your information regarding authorizations and limitations associated with these subscriber units' (radios) future operation, maintenance and impact on the RWC system:

1. This request will not include any access to secure talkgroups. All talkgroups contained in the permitted "code plug" are non-secure and thus open to monitoring by the general public. No encryption key support will be provided with this request.
2. No emergency alert access is permitted for the approved subscriber units.
3. No page function is permitted for the approved subscriber units.
4. There is no independent dispatch support provided for your participants. While interactions with dispatchers may occur, neither any RWC public safety dispatch center nor the RWC assume any responsibility for providing dispatch services to your participants unless coordinated and approved in advance. Additionally, there are no guarantees of response or performance on behalf of dispatch personnel when monitoring talkgroups. Reliance for operational dispatch services should be performed on your agency channels and supported by your staff.
5. Radios which have been lost, stolen, misplaced or security compromised, can present significant hazards to operational personnel. Therefore, subscriber units that are lost, stolen, or misplaced must immediately be reported to the RWC so



the ID can be inhibited (deactivated). Furthermore, the RWC reserves the right to inhibit any radio suspected of interfering with public safety operations.

6. The approved subscriber units may only be used when working jointly or interoperating with RWC members. RWC talkgroups are not permitted to be used for your agency-specific communications needs without prior RWC approval.
7. No assumptions should be made that talkgroups are always active and available for use. Interoperability talkgroups are often maintained in a deactivated mode and only used with permission or for tactical responses.
8. As an RWC interoperability participant, your agency is responsible for the maintenance, replacement, and programming of your subscriber equipment. The RWC may perform services for your agency with an approved contract, or by an authorized service provider. As technical or operational changes are made by RWC members, it is your responsibility to reprogram subscriber units with updated talkgroup plans or code plugs along with any associated costs. After a reasonable period of time, RWC radio IDs are subject to deactivation until the requested updates are completed by your agency.
9. This agreement is in effect based on the current RWC Governance Agreement Document. Future modifications could subject your agency to fees, programming or operational protocol changes. Your agency will be notified prior to any alternations to this agreement so that you may evaluate continued participation based on the modified agreement.

Please contact Mr. Todd Rogers to obtain your approved radio template. He can also answer questions about radio programming and advise you on those individuals or vendors who are approved to perform same. He may be reached at 602-262-6743, or by e-mail at [Todd.Rogers@Phoenix.gov](mailto:Todd.Rogers@Phoenix.gov).

Sincerely,

David A. Felix  
Executive Director  
Regional Wireless Cooperative

By signing below, you acknowledge that you are authorized to sign on behalf of your agency and that your agency will abide the terms and conditions set forth in this letter.

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Signature

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Title

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Date



## BOARD OF DIRECTORS REPORT

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TO: Regional Wireless Cooperative (RWC) Board Members      Agenda Date: May 26, 2011

FROM: Tahir Alhassan, RWC Accountant III      Item 3

SUBJECT: **RWC FY 2011/12 SUBSCRIBER UNIT (RADIO) RATE**

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### BACKGROUND

In December 2010, the RWC Board of Directors approved the budget for FY 2011/2012, with an understanding that the Subscriber Unit Rate would be set in the spring of 2011.

### THE ISSUE

The Subscriber Unit Rate is determined by dividing the Operations and Maintenance (O&M) budget by the average number of subscriber units on the network. The rate for FY 2011/12 has been calculated to be \$39.30, which represents a 14.8% decrease from the current rate of \$46.15. The reasons for the rate reduction are as follows:

- An increase in the number of subscriber units on the network
- A reduction in the originally approved O&M budget of \$8,532,452 to \$8,076,023
  - Two Information Technology Services (ITS) Technicians will not be hired
  - A decrease in costs for the software subscription and network maintenance and support (SSA and RA) contracts due to a delay in the transitioning Chandler and Scottsdale to the RWC network
    - This also takes into account Glendale's addition to the SSA and RA contracts

<b>Annual O &amp; M Budget</b>	<b>\$8,076,023</b>
<b>Average # of Subscriber Units</b>	<b>17126</b>
<b>Annual Subscriber Rate</b>	<b>\$471.55</b>
<b>Monthly Subscriber Rate</b>	<b>\$39.30</b>

### RECOMMENDATION

The RWC Executive Committee recommends approval of the FY 2011/12 Subscriber Unit Rate in the amount of \$39.30.



## BOARD OF DIRECTORS REPORT

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TO: Regional Wireless Cooperative (RWC) Board Members      Agenda Date: May 26, 2011

FROM: David Felix, RWC Executive Director      Item 6

SUBJECT: **FEDERAL COMMUNICATIONS COMMISSION (FCC) MANDATES**

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### BACKGROUND

Two Federal Communications Commission (FCC) mandates are on the horizon: one is to re-band all 800 MHz frequencies; the second is that all 700 MHz frequencies are to be narrow-banded by January 2017.

800 MHz Re-Banding has been mandated by the FCC to reduce interference between public safety and cellular carriers in the 800 MHz frequency band. The cellular carriers' frequencies are moving out of the low 800 MHz band and public safety frequencies are being moved into this area. Since Sprint/Nextel is the largest carrier with frequencies in the affected band, this entire effort, nationwide, is being funded by Sprint/Nextel. The RWC system falls into to last wave of the re-banding effort. At present, there is no identifiable deadline to complete this effort.

700 MHz Narrow-Banding is a requirement to change the current bandwidth of the 700 MHz channels, effectively doubling the number of channels available. The FCC has set January 2017 as the deadline for this requirement.

### THE ISSUE

There are discussions and requests to delay implementation of the 700 MHz Narrow-Banding. Some discussions argue that there are enough 700 MHz channels available which makes narrow-banding unnecessary. At a recent meeting with local representatives from the Region 3 (Arizona) 700 MHz Public Safety Regional Planning Committee (RPC), the RPC expressed support of requesting either a delay or a set aside of the requirement for 700 MHz narrow-banding for this region. Also discussed was that the FCC give consideration to allowing the RPC, working with local agencies, autonomy to decide when narrow-banding needs to occur for this region.

A waiver request letter to the FCC is in draft form and once finalized, the RWC Executive Director will seek to obtain signatures from all RWC Members, the TRWC, RPC, and the Department of Public Safety.

### RECOMMENDATION

This report is for informational purposes only.



## BOARD OF DIRECTORS REPORT

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TO: Regional Wireless Cooperative (RWC) Board Members      Agenda Date: May 26, 2011

FROM: RWC Executive Committee      Item 7

**SUBJECT: TRWC TALKGROUP USAGE AND JOINT EXECUTIVE COMMITTEE MEETING UPDATE**

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### THE ISSUE

The issue facing the TRWC and RWC was to determine if a fair and equitable method could be developed to provide direct operational use on one system by users of another system. This effort is in support of one of the activities outlined in the TRWC/RWC Joint Chairs letter of October 25, 2010 (See Attachment A). While the request was specifically for the City of Mesa, it had much broader implications which could affect many other non-member agencies. Also, while the groups discussed and clarified issues pertaining to interoperability, that was not the main issue since interoperability has long been defined and available between the TRWC and RWC, and between the RWC and many other outside agencies.

### BACKGROUND

As directed by the RWC Board, the Operations Working Group (OWG), Executive Committee (EC), and Executive Director worked together and with their respective counterparts in the TRWC to address a Mesa request for operational talkgroups on the RWC network. The RWC Board authorized the temporary use of two Interoperable talkgroups, and then authorized two interim talkgroups, assigned specifically for Mesa Police investigations, on the RWC. Mesa agreed to pay the current O&M rate for the latter talkgroups. The RWC Board's authorization was granted through July 1, 2011, and the above working groups were tasked to evaluate the Mesa request and see if a solution could be developed. This initial effort expanded as of May 16<sup>th</sup>, when Gilbert Police extended a request for an encrypted talkgroup, on the RWC, for use in the west valley.

The TRWC and RWC EC's were the main entities addressing this issue, but a Technical Working Group (TWG) was also utilized. Input from the OWG, and representatives of the RWC, was also obtained throughout the process.

The first joint meeting of the TRWC and RWC EC's was professionally facilitated to establish why and how the team would interact. At this meeting the group also began to define terms such as "operational," "interoperability," and "equitable." The team also began to lay out the issues and concerns facing the Cooperatives, the areas of

commonality and difference between the Cooperatives, and some of the alternatives to address the issue of providing operational talkgroups on each other's system.

Subsequent meetings delved more deeply into the above topics. The terms "Operational" and "Interoperability" required extensive discussions, especially to resolve issues regarding task forces and the duration of interoperable use. The following table provides a description of the final definitions:

<b>Operational</b>	<b>Interoperability</b>
<ul style="list-style-type: none"> <li>• Involves one agency or city / jurisdiction communicating within that one agency (daily, tactical)</li> <li>• Operations with the system (RWC or TRWC) even if it's more than one agency involved</li> <li>• Day to day use of a network among Members</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-agency</li> <li>• Across jurisdictions</li> <li>• Use of each other's networks among Members of each network (and other authorized participants outside of either network—e.g. U.S. Marshals)</li> <li>• Intermittent (generally, weeks not months with sporadic use within the duration; beyond weeks is the exception (case by case basis or situational))</li> </ul>

More discussion is still required to determine how to handle certain task forces, especially those involving federal agencies, since they may easily be construed to fit into either of the above definitions.

The team identified the following business requirements for this issue:

- Conduct business outside of home system
- Law Enforcement Activities (LEA)
- Encrypted / secure
- Select (limited) number of talkgroups
- Portable 12 db "on the hip"
- Coverage within governance standards
- In-building coverage
- Seamless roaming (ideally, this would not be "fingertip" roaming)
- Communicate back to home dispatch

The Joint EC's then determined that a smaller Technical Working Group should identify the options to meet the above requirements. The RWC members of the TWG put together a matrix of the requirements versus the various solutions (Shown in Attachment B), which the whole TWG used as a baseline for discussion. The Purchase Air Time (commercial) and Simplex (direct radio to radio) options were quickly ruled out as not viable for meeting the requirements. Purchasing Airtime requires using commercial devices and networks (PTT on cell phones), which is interfaced to the radio system, and while these devices are available they are relatively new and do not provide the quality and timeliness (3 – 4 seconds delay, or longer, to connect) needed

for public safety communications. The TRWC has indicated that the Simplex option does not provide the required range when used in stealth mode where the radio must be concealed low in the vehicle. The Integrated System (essentially to reconnect the systems as one) and ISSI solutions are viable but the team decided they would have to be examined as a potential long term solution. These solutions have bigger picture implications with respect to governance and the system of systems approach. There are other efforts underway, explained later in this report, to begin to address system of systems and governance. There are numerous Gateway options but as the team discussed these it became apparent that these would be either, difficult, expensive or inadequate. The Portable Site option is bulky and unwieldy and would be like a neon sign that undercover operations are taking place in the area. This application is more suitable for long term emergency coverage for an event such as a plane crash in a remote area where there is little or no radio coverage.

The agreed upon solution is the combination of the Operational Talkgroups and Control Station options. This is essentially an expansion of what is currently being done in the interim, providing the two Mesa PD Investigations talkgroups on the RWC. By adding a control station at Mesa dispatch, directed towards the RWC Network, these talkgroups may be monitored if desired.

At the next joint EC meeting, the above options were discussed and the group concluded that the solution proposed by the TWG is the easiest, most cost effective, and timely solution. The RWC Customer model was also presented and will be discussed in detail in the Discussion section below.

## DISCUSSION

About halfway through the above meetings the team recognized and acknowledged solving this problem is not a technical issue, as there are numerous technical solutions available. The real problem is to determine, a) the impact on system capacity and performance, b) how widespread this usage will become, and c) to find a fair and equitable method to charge for this service.

The RWC utilized the actual use data for the Mesa Investigations talkgroups to perform traffic simulations on the RWC Simulcast A subsystem. Busy hour data was utilized and the Mesa Investigations talkgroups were added to see the effects of adding these channels. The simulations show significant impact on the system capacity such that for every 4 such talkgroups added, system usage increases by about 5% which is the equivalent of 1 channel on Simulcast A. This is based on all of the added talkgroups having their busy hour at the same time. Of course that will not always be the case. However, the point is that talkgroups with this level of usage will impact the system using up existing capacity and care must be taken to ensure system performance is maintained.

Determining how widespread this use will become was not based on empirical data, but rather on experiential input. The RWC has received numerous similar requests, which have been denied to date. This coupled with a recent request from the Town of Gilbert

gives reasonable indication that the need for these types of talkgroups may become more likely.

By far the hardest task was to develop a billing model that is fair and equitable to all. As a starting point, the RWC team conducted research on if and how other regional systems provided such service. Attachment C provides a summary of a survey that was conducted using the governance documents of various systems along with a phone survey of those who had provisions for this type of use. Generally, the need for providing for this use was based on how the system is funded, particularly funding of system upgrades. Those systems that were state or county owned and operated were either closed systems (you must be a member to use the system), or they leased service on their systems, and thus there was no distinction in membership. Given the RWC is wholly funded by Members, with no central funding supporting the system (e.g. state or county) the RWC does not have the luxury to freely add users without concern for system expansion. The RWC's situation most closely aligns with that of the San Diego Regional Communications System, and that model, and terminology, was used as a basis for developing an RWC "Customer" billing model. "Customer" will be used from here on to describe this type of user.

Since the major concern for the RWC is to preserve performance of the system, which translates to maintaining adequate capacity, a billing model was developed based on recovering capital to be used towards capacity upgrades. In a large regional system, which is made up of many sub-systems (e.g. Simulcast A, B, C, F, G, H, J and ISR's), Customers may require capacity on one or more sub-systems, and the combinations are many. In order to simplify this problem, adding a single channel to Simulcast A, the RWC's largest sub-system, was used to determine how much capital should be recovered. Based on cost data from the recent COPS Capacity Increase project, the cost to upgrade Simulcast A is estimated at about \$624 K.

Further, a single Customer will most likely not use a full channel; therefore it is unreasonable to expect each Customer to fund a full channel. Also, the goal is not to discourage customer use, but to ensure that the RWC maintains its high level of performance when adding Customers. The San Diego model used a high, \$4,500 per radio, initial fee plus an ongoing usage fee that was about 3 times normal fee charged to members. Using these fees as a starting point, the initial fee and ongoing rate were adjusted until a reasonable recovery was achieved. Attachment D shows the final proposed recovery rate, versus the number of Customer radios that may be on the network. This is based on a model that includes:

- 1) \$2,500/radio initial fee to become a Customer
- 2) An ongoing Customer charge which is twice the established O&M rate
  - a) Half this rate to pay for actual O&M
  - b) The remaining half to be used as an ongoing capital recovery

The following rules for using the Customer category were also proposed:

- 1) The purpose of the Customer category is to provide direct operational talkgroups on the RWC network for use by non-members.
- 2) The RWC will determine if an agency is to become a Customer or a Member.
- 3) A new membership category will not be created, rather the Customer model will be handled as an RWC Policy.
- 4) Customers are non-voting participants.
- 5) Generally, the Customer category should be used if:
  - a) < 50 to 100 radios are to be used, but this is flexible and determined on a case-by-case basis
  - b) No capital investment is required to bring the agency on as a Customer (e.g. no additional sites must be added, no additional channels added to any subsystem)
  - c) If capital investment is required the agency should become a Member
- 6) The Customer category can NOT be used for commercial participants such as SWA or PMT
- 7) If an ID is assigned the Customer is charged accordingly (e.g. agency may NOT have 100 radios programmed with ID's but only use up to 30 at one time)
- 8) The number of talkgroups allowed for each Customer is limited. The general rule is one talkgroup for every 50 users; exceptions may be made if the RWC is satisfied that traffic will be very limited on extra talkgroups
- 9) Customer charges will begin immediately after customer radios are activated on the network (as opposed to beginning in the following quarter for Members)
- 10) Customers shall abide by all RWC Policies and Procedures

#### ADDITIONAL DISCUSSION

The Customer model was developed specifically for the purpose stated above and is not intended to be a solution for charging users that might be connected to the RWC network under a system of systems concept. The system of systems concept has two levels which must be considered.

First is where systems are joined primarily for interoperability and involve systems covering separate geographic regions. For example, this would apply if a system of systems were used to join the Yuma Regional Communications System (YRCS), Pima County Wireless Interoperable Network (PCWIN), DPS, RWC, and other systems such one for Flagstaff, etc. Such a system of systems would likely cause little loading on each other's respective systems and the Customer model would not be applicable.

The second example of a system of systems is where local systems in the same geographic area are connected. In this case there is likely to be a lot of cross traffic, not only for interoperability, but also for direct operations across the systems. In this case, the loading will be more significant. The Customer model may apply in this situation, but more research and discussion is required to assess this situation. Currently, YRCS, PCWIN, DPS, Maricopa County, RWC and TRWC are engaged in a project to provide a basic system of system connection. The Government Information Technology Agency (GITA) is facilitating this effort and will develop a governance document which is likely to become a model for further system of systems approaches in the State.



At the last joint EC meeting, the TRWC indicated that the proposed Customer model was not acceptable and is too expensive. The TRWC requested a six month extension of the current interim agreement to address the proposed model and to develop a system of systems approach to include handling use of operational talkgroups across multiple systems. The RWC EC met separately and determined that an extension to the September 22<sup>nd</sup> RWC Board meeting is more appropriate (about 80 days). During this period the TRWC could propose an acceptable alternative to the RWC Customer model, however, an acceptable model would need to be agreed upon by both Executive Committee's by September 14<sup>th</sup> in order for the RWC EC to properly prepare the RWC Board meeting packets in time for the September 22<sup>nd</sup> Board meeting. If the two EC's do not agree on an alternative cost model by this time, then the TRWC would have to either accept the Customer model above, or terminate its use of the two talkgroups currently on the RWC system. This extension will also give the RWC time to verify that the Customer model could be executed as a policy rather than as a change to the RWC IGA.

#### RECOMMENDATION

The Executive Committee and Executive Director requests the RWC Board approve the following:

- 1) Establish the Customer billing model, recognizing that an alternative model may be proposed at the September 22<sup>nd</sup> RWC Board meeting.
- 2) Extend the use of interim talkgroups by the TRWC to the September 22<sup>nd</sup> RWC Board meeting.

Attachment A  
Joint TRWC/RWC Chair Letter



**TO:** TRWC and RWC Board of Directors  
**FROM:** John Kross, TRWC Chairman of the Board  
Charles W. Meyer, RWC Chairman of the Board  
**SUBJECT:** TRWC and RWC Joint Meeting Results  
**Date:** 10/25/2010

Recently the Chairs, Vice Chairs, and Executive Directors of the RWC and TRWC Cooperatives met to discuss the ongoing relationship between the groups, with the goal of establishing a cohesive direction that supports Public Safety operations throughout the region. Central to our discussions was the importance of working together to provide roaming capabilities across the networks, high efficiency and reliability for our users, economical communications, and support of unique needs at a sub-region level. It is our common vision that we keep the radio services compatible, functional, and interoperable for all our members.

In discussing these goals, we exchanged ideas and options that would facilitate ongoing cohesiveness – ranging from operating as one system under single governance to moving toward a systems-of-systems, the linking of our systems together to support enhanced interoperability and shared coverage while maintaining operational and managerial independence.

We elected to investigate the system-of-systems course so that we could ultimately couple together the RWC and TRWC and in the future other agencies, in a way that supports regional operational needs, while determining how we work in concert with the systems as they are today. This coupling ultimately may be done at several levels, including joint participation in governance, technical, and operational aspects. Through a concerted effort, we are committed to work together to establish a regional approach to radio communications that extends beyond the RWC and TRWC to address collaborative needs in the larger region. To this end we have identified the following actions to be jointly delivered:

- Develop a solution for ongoing operational roaming across the region
- Develop a common regional, system-of-systems governance model
- Implement a Joint Operational Users Working Group
- Share capital improvement and roadmap plans to ensure ongoing compatibility of the systems
- Continue the regular participation with each other's Boards, with potential ex officio status
- Continuation of regular face to face working sessions between the Executive Directors
- Continued regular meetings of the RWC and TRWC Chairs, Vice-Chairs and Executive Directors

As Chairs of our respective Boards, we will continue to keep you informed on progress and lead an active and participative dialog on this important topic. At each of the upcoming RWC and TRWC Board meetings, we will further review the above direction and gather your feedback.

Sincerely,

A handwritten signature in black ink, appearing to read "John Kross".

John Kross  
Chairman of the Board  
TRWC

A handwritten signature in black ink, appearing to read "Charles W. Meyer".

Charles W. Meyer  
Chairman of the Board  
RWC

Attachment B  
Business Requirements Versus Solutions

	<b>Solutions</b>	<b>Conduct Business Outside Home System</b>	<b>Encrypted</b>	<b>Multiple Talk Paths</b>	<b>Adequate Signal Levels</b>	<b>Dispatch Connectivity</b>	<b>Seamless Roaming</b>	<b>Emergency Alarm/Call</b>
Selected Solution	<b>Operational Talkgroups</b>	Yes	Yes	Yes	Yes	Yes	No	Yes
	<b>Radio Sharing</b>	Yes	Yes	Yes	Yes	Yes	No	Yes
	<b>Simplex (Radio to Radio)</b>	Yes	Yes	Yes	Yes	No	Yes	Yes
	<b>Control Stations</b>	Yes	Yes	Yes	Yes	Yes	No	Yes
	<b>Portable Site</b>	Yes	Yes	Yes	Yes	No	Yes	Yes
	<b>Gateway Interface</b>	Yes	Yes	Yes	Yes	Yes	No	No
	<b>Integrated Systems</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<b>ISSI</b>	Yes	Yes	Yes	Yes	Yes	No	No
	<b>Expand Home System</b>	No	Yes	Yes	Yes	Yes	Yes	Yes
	<b>Purchase Air Time</b>	Yes	Yes	Yes	Yes	No	No	No

Attachment C

Summary of Survey of Other Regional Systems' Approach for Operational Use by Non-Members

System	Memberships	Voting Rights	Fees
San Diego Regional Communications System (RCS)	Member		Yes
	Mutual Aid (Interoperability)	No	No
	Customer (Same as TRWC request)	No	Yes, plus additional charge, total ~3x a Member's fees
			Note: All new Members and Customers pay \$4,500 per radio to join
Allied Radio Matrix for Emergency Communications (ARMER State of Minnesota System)	Full Membership Only	No; State designated Board which represents the user community	No fees, no upgrade costs; 100% owned and operated by the state
			Members such as a City or County may add on to the state system at their own cost; e.g. to provide more than mobile on street coverage
Consolidated Communications Network of Colorado (CCNB)	Member	Yes	Fees are unclear, but appears to be funded primarily by the state.
	Associate (Interoperability)	No	
Michigan Public Safety Communications System (MPSCS)	Not relevant	No	Fees are the same for everyone
			The system is owned and operated by the state; all upgrades are free to the users
Southern Nevada Area Communications Council (SNACC)	Members only	Unclear, but may not be necessary	System is operated as a lesser-lessee arrangement; all users pay based on airtime; not clear how the system is upgraded
Harris County, TX	Members only (specifically called a closed system) No mention of associates or interoperability users.	No	Owned and operated by the County; lesser-lessee arrangement; fees vary depending on whether users use their own or county owned radios

Attachment D  
Customer Model Capital Recovery

Notes:												
Change the values in the yellow highlighted cells to see the effects on the capital recovery.												
The green highlighted cells show where the capital recovery exceeds the estimated amount to recover in cell B6 (e.g. the break-even point).												
Amount to Recover	\$624,438	Based on COPS Grant per channel cost, without add'l DC power, of \$69,382/Sub-Site * 9 Sub-Sites = \$624,438 to simulate adding capacity to Simul A										
Customer Start-up Fee/Radio	\$2,500	Fee to be charged for each radio a Customer brings onto the RWC; the San Diego example is \$4,500 per radio.										
Member O&M Fee/Radio/Month	\$40.48	Projected O&M Rate for 2011/12										
Customer Fee/Radio/Month	\$80.96	Amount to charge the Customer which includes O&M and Capital Recovery; San Diego example for Customer Fee is approx 3x the Member O&M rate										
Amount to apply to O&M	\$40.48	Note: ALL of the Customer fees could be applied towards capital recovery, thus this value could be \$0 to maximize capital recovery										
Amount to apply to Capital	\$40.48	Amount applied towards capital recovery is the Customer Fee - O&M										
RWC Member Radio Count	16,582											
		Year										
Capital Recovery	Startup	1	2	3	4	5	6	7	8	9	10	
Number of Radios												
25	\$62,500	\$74,644	\$86,788	\$98,932	\$111,076	\$123,220	\$135,364	\$147,508	\$159,652	\$171,796	\$183,940	
50	\$125,000	\$149,288	\$173,576	\$197,864	\$222,152	\$246,440	\$270,728	\$295,016	\$319,304	\$343,592	\$367,880	
100	\$250,000	\$298,576	\$347,152	\$395,728	\$444,304	\$492,880	\$541,456	\$590,032	\$638,608	\$687,184	\$735,760	
150	\$375,000	\$447,864	\$520,728	\$593,592	\$666,456	\$739,320	\$812,184	\$885,048	\$957,912	\$1,030,776	\$1,103,640	
200	\$500,000	\$597,152	\$694,304	\$791,456	\$888,608	\$985,760	\$1,082,912	\$1,180,064	\$1,277,216	\$1,374,368	\$1,471,520	
250	\$625,000	\$746,440	\$867,880	\$989,320	\$1,110,760	\$1,232,200	\$1,353,640	\$1,475,080	\$1,596,520	\$1,717,960	\$1,839,400	
300	\$750,000	\$895,728	\$1,041,456	\$1,187,184	\$1,332,912	\$1,478,640	\$1,624,368	\$1,770,096	\$1,915,824	\$2,061,552	\$2,207,280	
350	\$875,000	\$1,045,016	\$1,215,032	\$1,385,048	\$1,555,064	\$1,725,080	\$1,895,096	\$2,065,112	\$2,235,128	\$2,405,144	\$2,575,160	
400	\$1,000,000	\$1,194,304	\$1,388,608	\$1,582,912	\$1,777,216	\$1,971,520	\$2,165,824	\$2,360,128	\$2,554,432	\$2,748,736	\$2,943,040	
500	\$1,250,000	\$1,492,880	\$1,735,760	\$1,978,640	\$2,221,520	\$2,464,400	\$2,707,280	\$2,950,160	\$3,193,040	\$3,435,920	\$3,678,800	
600	\$1,500,000	\$1,791,456	\$2,082,912	\$2,374,368	\$2,665,824	\$2,957,280	\$3,248,736	\$3,540,192	\$3,831,648	\$4,123,104	\$4,414,560	
700	\$1,750,000	\$2,090,032	\$2,430,064	\$2,770,096	\$3,110,128	\$3,450,160	\$3,790,192	\$4,130,224	\$4,470,256	\$4,810,288	\$5,150,320	
800	\$2,000,000	\$2,388,608	\$2,777,216	\$3,165,824	\$3,554,432	\$3,943,040	\$4,331,648	\$4,720,256	\$5,108,864	\$5,497,472	\$5,886,080	
900	\$2,250,000	\$2,687,184	\$3,124,368	\$3,561,552	\$3,998,736	\$4,435,920	\$4,873,104	\$5,310,288	\$5,747,472	\$6,184,656	\$6,621,840	
1000	\$2,500,000	\$2,985,760	\$3,471,520	\$3,957,280	\$4,443,040	\$4,928,800	\$5,414,560	\$5,900,320	\$6,386,080	\$6,871,840	\$7,357,600	



## **BOARD OF DIRECTORS REPORT**

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TO: Regional Wireless Cooperative (RWC) Board Members      Agenda Date: May 26, 2011

FROM: RWC Executive Committee      Item 8

**SUBJECT: RWC LIFECYCLE PLANNING AND TDMA CONVERSION**

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### BACKGROUND

The issue of RWC Lifecycle Planning and Time Division Multiple Access (TDMA) conversion was previously reported on at the last RWC Board of Directors' Meeting. The purpose of this report is to provide general timeline options with regards to Lifecycle planning and a potential TDMA conversion.

### THE ISSUE

There are many upgrades and product changes that occur as part of the life of the system. Additionally, a Federal mandate for 700 MHz Narrow-Banding also affects how the system will change over the next several years.

700 MHz Narrow-Banding is a requirement to change the current 12.5 KHz bandwidth of the 700 MHz channels to 6.25 KHz, effectively doubling the number of channels available. The deadline for this mandate is currently set at January 2017. In order to meet the narrow-banding requirement, the RWC's 700 MHz equipment must use a different communication protocol called TDMA, which allows the equipment to broadcast two voice conversations on a single 700 MHz channel. Currently, the RWC is using the Frequency Division Multiple Access (FDMA) protocol. Although both protocols may be used on the same system, they cannot be used on the same talkgroup at the same time. This limits the seamless roaming ability. Thus, in order to comply with the Federal mandate, the RWC must convert the 700 MHz parts of the system to TDMA, and in order to maintain seamless roaming, the entire network must be converted to TDMA.

The RWC is currently planning for system upgrades to version 7.11, in January of 2013, and to version 7.15 in January of 2015. These upgrades have been included in the five year plan and budget recently submitted to the Board. In addition to these upgrades, Motorola has briefed the RWC on the product roadmap for the next five years. The roadmap includes several key product changes where support for certain products will be ending necessitating upgrades and/or changes in these products. The critical product changes that must be considered are those affecting base stations, consoles, and subscribers.

The following chart shows the timeline in relationship between the Federal mandate and the lifecycle items.

## RWC Lifecycle and FCC Mandates

	2011	2012	2013	2014	2015	2016	2017
<b>FCC Mandates</b>	Fixed →					<b>700 MHz Narrow-Banding</b>	
<b>Upgrades</b>	Movable →	7.11			7.15		7.19
<b>End Product Support</b>	Fixed →			<b>STR (2014)</b>		<b>Gold Elite (2018)</b>	
<b>Subscribers</b>	Dependent on mandate →		<b>Normal replacement cycle 7 – 10 years</b>			<b>Subscribers TDMA Capable</b>	

### DISCUSSION

It is apparent that the RWC will need to move forward to address the mandates as well as the lifecycle upgrades. The Operations Work Group and Executive Committee are in the process of reviewing options to accomplish the lifecycle upgrades and meet the FCC 700 MHz Narrow-Banding mandate. While normal Lifecycle upgrades must be accomplished with or without the Federal mandate for narrow-banding, if the Federal mandate is delayed, the RWC's costs may be extended over a longer period of time. The infrastructure upgrades cannot be delayed more than about a year, but the subscriber replacement costs may be delayed and spread out over a much longer period.

Three options are presented for discussion and information only at this time. The first option is the worst case scenario in which all lifecycle changes and TDMA conversion take place at the same time, in 2013/14. In this scenario, all subscribers would have to be replaced over the next three fiscal years. The second option is based on making the lifecycle upgrades from STR's to GTR's in 2014/15 and the TDMA conversion in 2016 to meet the January 2017 federal mandate for narrow-banding. This would allow a six year period in which to replace the subscribers, accomplish the Gold Elite console replacements and upgrade the MCC 7500's to VPM as well. In this case, it may be necessary to spend more on the STR to GTR conversion to ensure that we have

enough capacity on the system. This is due to the fact that the TDMA conversion doubles the capacity with less hardware, but since that conversion is delayed, more hardware may be necessary to provide the required capacity. The final option is basically the same as the second, except that the federal mandate has been moved to 2019 giving two more years over which to spread the costs of the subscriber and console changes. These options are shown in Attachments A - C.

The RWC is working with many of the surrounding agencies to petition the FCC to give the local Regional Planning Committee the authority to determine when to convert to narrow-banding, or at least to delay the narrow-banding deadline. However, until the request is submitted and the FCC responds it is necessary to plan as if the current deadline must be met.

The cost figures shown for the above options are divided into two parts. Those in yellow are costs that will be borne by the RWC; those in magenta are end users costs and must be independently borne by each Member. A current proposal from Motorola provides the cost for the infrastructure lifecycle changes and TDMA conversion. An average cost of \$5,000 per radio and about \$90,000 per Gold Elite position are used to estimate the end user costs for these items. The costs for the VPM upgrades are still under development and NOT included since we do not have an accurate count of the MCC 7500 positions affected by this upgrade. Note that Motorola is beginning an effort to visit each RWC Member to develop specific end user plans and costs that will mesh with the RWC's overall plan.

As the RWC Board has already been advised, the team is investigating the possibility of a "buy-out" of the 800 MHz re-banding project. In-lieu of re-banding the RWC's 800MHz frequencies, they would all be converted to 700 MHz in conjunction with our lifecycle and TDMA conversion. This funding may then be used to offset some of our costs towards accomplishing that effort.

#### RECOMMENDATION

At this time, this report is for information purposes only. The Executive Director, OWG and Executive Committee are working to assess these options and costs and plan to present the recommended path forward, along with an estimated budget as part of the RWC's budget and five year plan in the fall of this year.



**Attachment A**

<b>Option 1: 700 MHz and TDMA Conversion Accomplished Together to Meet 2014 Deadline for STR Replacement</b>								
<b>FY</b>			<b>RWC Costs</b>		<b>End User Costs</b>			
	<b>800 MHz Re-Banding Milestones</b>	<b>700 MHz Narrow-Banding Milestones</b>	<b>Infrastructure Lifecycle</b>		<b>Infrastructure Estimates</b>	<b>End User Costs (Gold Elite, VPM - TBD)</b>	<b>Subscriber Cost Estimates (Based Spread Over 3 Years)</b>	<b>Cumulative (Infrastructure + User + Subscribers)</b>
<b>11/12</b>							<b>\$30,678,333</b>	<b>\$30,678,333</b>
<b>12/13</b>	<b>Earliest Completion Date</b>		<b>7.11 Upgrade</b>				<b>\$30,678,333</b>	<b>\$30,678,333</b>
<b>13/14</b>	<b>Latest Completion Date</b>			<b>STR and Gold Elite Update</b>	<b>\$40,000,000</b>	<b>\$13,500,000</b>	<b>\$30,678,333</b>	<b>\$84,178,333</b>
<b>14/15</b>			<b>7.13 Upgrade</b>					
<b>15/16</b>		<b>Current Deadline</b>						
<b>16/17</b>			<b>7.15 Upgrade</b>					
<b>17/18</b>								
<b>18/19</b>			<b>7.17 Upgrade</b>					
<b>19/20</b>								
<b>Grand Totals</b>					<b>\$40,000,000</b>	<b>\$13,500,000</b>	<b>\$92,035,000</b>	<b>\$145,535,000</b>

**Attachment B**

<b>Option 2: 700 MHz Conversion in 2014; TDMA Conversion &amp; FCC Deadline of 2017</b>								
<b>FY</b>			<b>RWC Costs</b>		<b>End User Costs</b>			
	<b>800 MHz Re-Banding Milestones</b>	<b>700 MHz Narrow-Banding Milestones</b>	<b>Infrastructure Lifecycle</b>	<b>Infrastructure Estimates</b>	<b>End User Costs (Gold Elite, VPM - TBD)</b>	<b>Subscriber Cost Estimates (Based Spread Over 6 Years)</b>	<b>Cumulative (Infrastructure + User + Subscribers)</b>	
<b>11/12</b>						\$15,339,167	\$15,339,167	
<b>12/13</b>	<b>Earliest Completion Date</b>		<b>7.11 Upgrade</b>			\$15,339,167	\$15,339,167	
<b>13/14</b>	<b>Latest Completion Date</b>					\$15,339,167	\$15,339,167	
<b>14/15</b>			<b>7.13 Upgrade</b>	<b>STR and Gold Elite Update</b>	\$40,000,000	\$13,500,000	\$15,339,167	\$68,839,167
<b>15/16</b>		<b>Current Deadline</b>				\$15,339,167	\$15,339,167	
<b>16/17</b>			<b>7.15 Upgrade</b>		\$10,000,000	\$15,339,167	\$25,339,167	
<b>17/18</b>								
<b>18/19</b>			<b>7.17 Upgrade</b>					
<b>19/20</b>								
<b>Grand Totals</b>					\$50,000,000	\$13,500,000	\$92,035,000	\$155,535,000

**Attachment C**

<b>Option 3: 700 MHz Conversion in 2014; TDMA Conversion &amp; FCC Deadline Delayed to 2019</b>								
<b>FY</b>			<b>RWC Costs</b>		<b>End User Costs</b>			
	<b>800 MHz Re-Banding Milestones</b>	<b>700 MHz Narrow-Banding Milestones</b>	<b>Infrastructure Lifecycle</b>	<b>Infrastructure Estimates</b>	<b>End User Costs (Gold Elite, VPM - TBD)</b>	<b>Subscriber Cost Estimates (Based Spread Over 8 Years)</b>	<b>Cumulative (Infrastructure + User + Subscribers)</b>	
<b>11/12</b>						\$11,504,375	\$11,504,375	
<b>12/13</b>	<b>Earliest Completion Date</b>		<b>7.11 Upgrade</b>			\$11,504,375	\$11,504,375	
<b>13/14</b>	<b>Latest Completion Date</b>					\$11,504,375	\$11,504,375	
<b>14/15</b>			<b>7.13 Upgrade</b>	<b>STR and Gold Elite Update</b>	\$40,000,000	\$13,500,000	\$11,504,375	\$65,004,375
<b>15/16</b>		<b>Current Deadline</b>				\$11,504,375	\$11,504,375	
<b>16/17</b>			<b>7.15 Upgrade</b>			\$11,504,375	\$11,504,375	
<b>17/18</b>						\$11,504,375	\$11,504,375	
<b>18/19</b>			<b>7.17 Upgrade</b>		\$10,000,000	\$11,504,375	\$21,504,375	
<b>19/20</b>								
<b>Grand Totals</b>					\$50,000,000	\$13,500,000	\$92,035,000	\$155,535,000