Date: September 27, 2021

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

From: Dale Shaw, TRWC Executive Director

Rob Duggan, TRWC Executive Committee Co-chairman

Mike Dvorak, TRWC Executive Committee Co-chairman

Subject: Fiscal Year 2022/2023 Budget

Recommendation

The TRWC Executive Director and Executive Committee recommend the review and consideration of the Preliminary TRWC Budget (attached) in the amount of $5,828,219 for Fiscal Year 2022/2023.

Background & Discussion

The attached Preliminary Budget for Fiscal Year 2022/2023 has been under review and endorsed by the TRWC Executive Committee. When compared to the current 2021/2022 Fiscal Year Budget, the proposed Operating & Maintenance expenses will increase by $269,398 (predominately due to increases in professional services, network subscription, and monitoring costs). When compared to the previously presented forecast, Capital expenditures will increase by $899,176 (predominately due to acceleration of system expansion and the addition of enhanced data capabilities).

Fiscal Impact

The Preliminary Budget represents the total planned contribution by all member agencies for the ongoing operation, maintenance, and improvement of the TRWC radio network. Each member agency will be invoiced as actual expenditures occur on a monthly basis using the cost allocation methodology outlined in the adopted Budget.

TRWC Operating & Maintenance Budget Summary of Labor and Non-labor	FY 21/22 BUDGET	FY 22/23 DRAFT BUDGET	Proposed FY22/23 Budget Last year	CHANGE FY21/22 to FY22/23		
ESCALATION FACTOR		2.50%	1.90%			
Salaries and Wages **(4)**	$ 354,883	366,626	361,626	$ 11,743		
Total Labor	$ 354,883	$ 366,626	$ 361,626	$ 11,743	3.3%	$ 5,000
ESCALATION FACTOR		1.90%	1.90%			
GENERAL & ADMINISTRATIVE - OTHER SERVICES						
Temp Services	$ 6,230	6,349	6,349	$ 119		$ -
Prof Services - TRWC Executive Director	93,734	95,515	95,515	1,781		$ -
Prof Services - Legal, Consulting & Other **(5)**	115,134	242,322	117,322	127,188		$ 125,000
Ins. Premiums - Agencies	8,827	8,994	8,994	167		$ -
Utilities	71,330	72,685	72,685	1,355		$ -
Telephone	3,531	3,598	3,598	67		$ -
Repairs & Maint	32,189	32,801	32,801	612		$ -
Equipment Usage (Vehicles)	20,767	21,162	21,162	395		$ -
Shaw Butte & Florence Gardens-Land	26,271	26,770	26,770	499		$ -
Training	20,000	20,380	20,000	380		$ 380
Travel	20,000	20,380	20,000	380		$ 380
Networking Subscription Costs	-	12,000	-	12,000		$ 12,000
All Other Services	-	-		-		$ -
TOTAL OTHER SERVICES	$ 418,013	$ 562,956	$ 425,196	$ 144,943	34.7%	$ 137,760
GENERAL & ADMINISTRATIVE - COMMODITIES						
Non Cap Assets	$ 12,980	13,226	26,452	$ 247		$ (13,226)
Contract - Motorola (Preventative & Security Monitoring) **(6)**	890,824	975,000	907,750	84,176		$ 67,250
Software Maint-Mainsaver, Juniper **(7)**	43,000	67,562	63,562	24,562		$ 4,000
Materials & Repair Parts	30,475	31,054	31,054	579		$ -
All Other Commodities	-	-		-		$ -
TOTAL COMMODITIES	$ 977,279	$ 1,086,842	$ 1,028,818	$ 109,564	11.2%	$ 58,024
OTHER BUDGET ITEMS						
PROPOSED CONTINGENCY - 1.5%	$ 27,379	$ 29,487	$ 28,194	$ 2,108		$ 1,293
VHF OPERATIONS (special assessment)	26,165	26,663	26,663	498		$ 0
VHF Equipment Staff Time (special assessment)	28,555	29,098	29,098	543		$ -
SAU II Fire Line	-	25,000	25,000	25,000		$ -
TOTAL OTHER BUDGET ITEMS	$ 82,099	$ 110,248	$ 108,955	$ 3,149		$ 1,293
Total Operating & Maintenance	$ 1,832,274	$ 2,126,672	$ 1,924,595	$ 294,398	16.1%	
O&M - AIRTIME PERCENTAGE (1)						
Mesa	67.08%	66.91%	66.91%	-0.17%		
Gilbert	19.45%	19.35%	19.35%	-0.10%		
Apache Junction	9.15%	9.40%	9.40%	0.25%		
Ft McDowell	2.21%	2.14%	2.14%	-0.07%		
Superstition Fire & Medical	0.72%	0.74%	0.74%	0.02%		
Queen Creek	0.64%	0.64%	0.64%	0.00%		
Rio Verde	0.02%	0.03%	0.03%	0.01%		
Southwest Ambulance	0.56%	0.60%	0.60%	0.04%		
American Medical Response	0.17%	0.19%	0.19%	0.02%		
Total	100.00%	100.00%	100.00%	0.00%		
VHF SPECIAL ASSSESSMENT (2,3)						
Mesa Fire & Medical	68.68%	68.68%	68.68%	0.00%		
Gilbert Fire	17.16%	17.16%	17.16%	0.00%		
Superstition Fire & Medical	10.01%	10.01%	10.01%	0.00%		
Queen Creek Fire	3.22%	3.22%	3.22%	0.00%		
Rio Verde Fire	0.93%	0.93%	0.93%	0.00%		
Total	100.00%	100.00%	100.00%	0.00%		
ANNUAL ESTIMATED REVENUE: OPERATING & MAINTENANCE						
Mesa	1,229,965	1,407,216	$ 1,272,006	177,251		
Gilbert	355,124	405,452	366,350	50,328		
Apache Junction	162,646	192,316	173,320	29,669		
Ft McDowell	39,284	43,782	39,458	4,499		
Superstition Fire & Medical	18,276	20,721	19,226	2,446		
Queen Creek	13,138	14,889	13,596	1,751		
Rio Verde	864	1,132	1,072	268		
Southwest Ambulance	9,954	12,275	11,063	2,321		
American Medical Response	3,022	3,887	3,503	865		
Total	$ 1,832,274	$ 2,101,672	$ 1,899,595	$ 269,398		$ 202,077

(1) Normal partner assessments are allocated based on July, 2021 6-month rolling average airtime and will change based on actual monthly data.
(2) For FY 19/20 Endorsed Budget, agency cost distribution for the Fire Hazard Zone Communication (VHF) Special Assessment is based on 12 months average Airtime as of March 31, 2015.
(3) For FY 20/21 Proposed Budget, agency cost distribution for the Fire Hazard Zone Communication (VHF) Special Assessment is based on Call Volume July 1, 2018 - June 30, 2019.
(4) Standard Escalator 1.9% + Compensation .06% + Task Order OF $5,000
(5) $100,000 FOR Cyber Security + $25,000 from Capital Possible increase to web site refresh-
(6) Awaiting quote from Motorola, when new sites are operational this will increase, looking at adding monitoring $50,000 total increase of the $67,250
(7) Original ran out-possible new warranty

TRWC Operating & Maintenance Budget
Summary of Labor and Non-labor

	FY 21/22 DRAFT BUDGET	FY 22/23 DRAFT BUDGET	Proposed FY22/23 Budget Last year	FY 23/24	Proposed 23/24Budget Last year	FY 24/25	Proposed 24/25Budget Last year	FY 25/26	Proposed 25/26Budget Last year	FY 26/27	Proposed 26/27Budget Last year	FY 27/28
					FORECAST							
ESCALATION FACTOR		2.50%	1.90%	2.30%	2.30%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Salaries and Wages	$ 354,883	366,626	361,626	$ 375,058	$ 369,943	$ 386,310	$ 381,042	$ 397,899	$ 392,473	$ 409,836	$ 404,247	$ 422,131
Total Labor	$ 354,883	$ 366,626	$ 361,626	$ 375,058	$ 369,943	$ 386,310	$ 381,042	$ 397,899	$ 392,473	$ 409,836	$ 404,247	$ 422,131
ESCALATION FACTOR		1.90%	1.90%	1.90%	1.90%	1.90%	1.90%	1.90%	1.90%	1.90%	1.90%	1.90%
GENERAL & ADMINISTRATIVE - OTHER SERVICES												
Temp Services	$ 6,230	6,348	6,349	$ 6,469	$ 6,469	$ 6,592	$ 6,592	$ 6,717	$ 6,717	$ 6,845	$ 6,845	$ 6,975
Prof Services - TRWC Executive Director	93,734	95,515	95,515	97,330	97,329	99,179	99,179	101,063	101,063	102,984	102,983	104,940
Prof Services - Legal, Consulting & Other	115,134	242,322	117,322	117,322	119,551	119,551	121,822	121,822	124,137	124,137	126,495	126,495
Ins. Premiums - Agencies	8,827	8,995	8,994	9,166	9,165	9,340	9,339	9,517	9,517	9,698	9,698	9,882
Utilities	71,330	72,685	72,685	74,066	74,066	75,474	75,474	76,908	76,908	78,369	78,369	79,858
Telephone	3,531	3,598	3,598	3,666	3,666	3,736	3,736	3,807	3,807	3,879	3,879	3,953
Repairs & Maint	32,189	32,801	32,801	33,424	33,414	34,059	34,059	34,706	34,706	35,365	35,366	36,037
Equipment Usage (Vehicles)	20,767	21,162	21,162	21,564	21,564	21,973	21,974	22,391	22,391	22,816	22,817	23,250
Shaw Butte & Florence Gardens	26,271	26,770	26,770	27,279	27,279	27,797	27,797	28,325	28,325	28,863	28,863	29,412
Training	20,000	20,380	20,000	20,767	20,380	21,162	20,767	21,564	21,162	21,974	21,564	22,391
Travel	20,000	20,380	20,000	20,767	20,380	21,162	20,767	21,564	21,162	21,974	21,564	22,391
System-of-Systems Networking Subscription Costs -(This could be a PTT fee if operational)	-	12,000	-	12,228	-	12,460	-	12,697	-	12,938	-	13,184
All Other Services	-	-		-		-		-		-		
TOTAL OTHER SERVICES	$ 418,013	$ 562,955	$ 425,196	$ 444,047	$ 433,263	$ 452,484	$ 441,506	$ 461,081	$ 449,895	$ 469,842	$ 458,443	$ 478,769
GENERAL & ADMINISTRATIVE - COMMODITIES												
Non Cap Assets	$ 12,980	13,226	26,452	$ 13,477	$ 26,955	$ 13,733	$ 27,467	$ 13,994	$ 27,989	$ 14,260	$ 28,521	$ 14,531
Contract - Motorola (Preventative & Security Monitoring)	890,824	975,000	907,750	$ 993,525	$ 924,997	$1,012,402	$ 942,572	$1,031,637	$ 960,481	$1,051,238	$ 978,730	$1,071,212
Software Maint-Avait,Juniper	43,000	67,562	63,562	$ 68,846	$ 64,770	70,154	66,000	71,487	67,254	72,845	66,532	74,229
Materials & Repair Parts	30,475	31,054	31,054	$ 31,644	$ 31,644	32,245	32,245	32,858	32,858	33,482	33,482	34,118
All Other Commodities	-	-		-		-		-		-		
TOTAL COMMODITIES	$ 977,279	$1,086,842	$1,028,818	$1,107,492	$ 1,048,366	$1,128,534	$ 1,068,284	$1,149,976	$ 1,088,582	$1,171,826	$ 1,107,265	$1,194,091
OTHER BUDGET ITEMS												
PROPOSED CONTINGENCY - 1.5%	$ 27,380	29,487	$ 28,194	$ 29,917	$ 28,852	$ 30,656	$ 29,362	$ 31,196	$ 30,089	$ 31,968	$ 30,621	$ 32,532
VHF OPERATIONS Equipment Repair	26,165	26,662	26,663	27,169	27,169	27,685	27,685	28,211	28,211	28,747	28,747	29,293
VHF Equipment Staff Time	28,555	29,098	29,098	29,650	29,650	30,214	30,214	30,788	30,788	31,373	31,373	31,969
SAU II Fire Line	-	25,000	25,000	25,475	25,475	25,959	25,959	26,452	26,452	26,955	26,955	27,467
TOTAL OTHER BUDGET ITEMS	$ 82,100	$ 110,247	$ 108,955	$ 112,211	$ 111,146	$ 114,514	$ 113,220	$ 116,647	$ 115,540	$ 119,042	$ 117,696	$ 121,261
Total Operating & Maintenance	$ 1,832,274	$2,126,671	$1,924,595	$2,038,809	$ 1,962,718	$2,081,842	$ 2,004,052	$2,125,604	$ 2,046,490	$2,170,546	$ 2,087,651	$2,216,252
O&M - AIRTIME PERCENTAGE (1)												
Mesa	67.08%	66.91%	66.91%	66.91%	68.54%	66.91%	68.54%	66.91%	68.54%	66.91%	68.54%	66.91%
Gilbert	19.45%	19.35%	19.35%	19.35%	17.79%	19.35%	17.79%	19.35%	17.79%	19.35%	17.79%	19.35%
Apache Junction	9.15%	9.40%	9.40%	9.40%	9.00%	9.40%	9.00%	9.40%	9.00%	9.40%	9.00%	9.40%
Ft McDowell	2.21%	2.14%	2.14%	2.14%	2.11%	2.14%	2.11%	2.14%	2.11%	2.14%	2.11%	2.14%
Superstition Fire & Medical	0.72%	0.74%	0.74%	0.74%	1.06%	0.74%	1.06%	0.74%	1.06%	0.74%	1.06%	0.74%
Queen Creek	0.64%	0.64%	0.64%	0.64%	0.41%	0.64%	0.41%	0.64%	0.41%	0.64%	0.41%	0.64%
Rio Verde	0.02%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Southwest Ambulance	0.56%	0.60%	0.60%	0.60%	0.87%	0.60%	0.87%	0.60%	0.87%	0.60%	0.87%	0.60%
American Medical Response	0.17%	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
VHF SPECIAL ASSSESSMENT (2)												
Mesa Fire & Medical	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%	68.68%
Gilbert Fire	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%	17.16%
Superstition Fire & Medical	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%	10.01%
Queen Creek Fire	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%
Rio Verde Fire	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%	0.93%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ANNUAL ESTIMATED REVENUE: OPERATING & MAINTENANCE												
Mesa	$ 1,229,965	$1,407,214	$1,272,006	$1,348,127	$ 1,327,866	$1,376,616	$ 1,355,866	$1,405,587	$ 1,384,617	$1,435,341	$ 1,412,485	$1,465,600
Gilbert	355,124	405,452	366,350	388,336	344,278	396,545	351,538	404,894	358,993	413,468	366,219	422,188
Apache Junction	162,646	192,316	173,320	183,912	169,238	187,811	172,817	191,774	176,494	195,846	180,052	199,987
Ft McDowell	39,284	43,782	39,458	41,869	39,677	42,757	40,516	43,659	41,378	44,586	42,212	45,529
Superstition Fire & Medical	18,276	20,721	19,226	20,166	25,620	20,581	26,150	21,003	26,693	21,436	27,224	21,876
Queen Creek	13,138	14,889	13,596	14,351	9,539	14,651	9,737	14,957	9,940	15,270	10,138	15,589
Rio Verde	864	1,132	1,072	1,115	1,093	1,138	1,115	1,161	1,137	1,184	1,159	1,208
Southwest Ambulance	9,954	12,275	11,063	11,739	16,360	11,988	16,706	12,241	17,061	12,501	17,405	12,765
American Medical Response	3,022	3,887	3,503	3,717	3,573	3,796	3,648	3,876	3,726	3,959	3,801	4,042
TOTAL	$ 1,832,275	$2,101,669	$1,899,595	$2,013,334	$ 1,937,243	$2,055,883	$ 1,978,093	$2,099,152	$ 2,020,038	$2,143,591	$ 2,060,696	$2,188,785

(1) Normal partner assessments are allocated based on the July 2021 6-month rolling average airtime and will change based on actual monthly data.

TRWC Capital Budget Plan	PROJECT ID	Final FY 21/22	New Draft FY 22/23	FORCAST Proposed FY 22/23 From last year	New Proposal FY 23/24	Proposed FY 23/24 From last year	New Proposal FY 24/25	Proposed FY 24/25 From last year	New Proposal FY 25/26	Proposed FY 25/26 From last year	New Proposal FY 26/27	Proposed FY 26/27 From last year	New Proposal FY 27/28	Proposed FY 27/28 From last year	FY 28/29	TOTAL 9 Years	22/23 Difference	Project	Personnel	Overhead
ESCALATION FACTOR					1.90%		1.90%		1.90%		1.90%		1.90%		1.90%					
Site Expansion #1	CP0091	1,350,000	1,590,000	1,590,000	570,640	560,000	-	-	-	-	-	-	-	-		$ 5,660,640	$ -	1,089,588	196,126	64,286
Site Expansion #2 Moved up a year	CP0754	-	790,276	-	1,033,111	590,276	1,052,740	1,013,847	-	-	-	-	-	-		$ 4,480,250	$ 790,276	-	-	-
Site Expansion #2 Moved up a year	CP0779	-	-	-	-	-	1,375,650	-	1,636,211	-	1,060,285	605,703	-	1,040,515		$ 4,677,849	$ -	-	-	-
System-of-Systems Networking Expansion CP0438	CP0905	-	25,000	247,800	25,475	25,000	-	-	-	-	-	-	-	-		$ 323,275	$ (222,800)	-	-	-
Upgrade Shaw Butte and Florence Gardens to P25 Phase II (TDMA)	CP0906	287,406	287,406	287,406	-	-	-	-	-	-	-	-	-	-		$ 862,218	$ -	231,966	41,754	13,686
Radio Sites Emergency Power Upgrade	LF0226	106,200	106,200	106,200	108,218	106,200	-	-	-	-	-	-	-	-		$ 533,018	$ -	85,714	15,429	5,057
Communications Building UPS Battery Replacement	LF0228	-	17,700	17,700	-	-	-	-	-	-	18,036	17,700	-	-		$ 71,136	$ -	-	-	-
Radio & Core Sites Battery Backup Lifecycle Upgrade	LF0266	31,910	-	-	-	-	72,790	71,433	74,173	71,433	90,989	89,292	-	-		$ 502,020	$ -	25,755	4,636	1,520
Radio & Core Sites DC Power Plant Lifecycle Upgrade	LF0267	-	-	-					750,000	750,000	764,250	750,000	-	-		$ 3,014,250	$ -	-	-	-
Enhanced data New project			371,000														$ 371,000			
Antenna & Transmission Lines Lifecycle Upgrade	LF0282	-	-	-	-	-	-	-	-	-	-	-	-	-		$ -	$ -	-	-	-
TOPAZ P25 Voice Radio Network Lifecycle Upgrade (FY31) Moved up a year	New	-	-	167,265	-	-	-	-	-	-	-	-	2,038,000	-		$ 2,205,265	$ (167,265)	-	-	-
Wireless Backhaul (Microwave) Network Lifecycle Upgrade Added years to this project	New	-	167,265	-	170,443	167,265	173,681	167,265	176,981	-	180,344	-	183,771	-	187,262	$ 1,387,015	$ 167,265	-	-	-
Consulting Services for VHF & 7/800 MHz Coverage Expansion		40,000	-	40,000	-	40,000											$ (40,000)	32,284	5,811	1,905
Sub-total		1,815,516	3,354,847	2,456,371	1,907,887	1,488,741	2,674,861	1,252,545	2,637,365	821,433	2,113,904	1,462,695	2,221,771	1,040,515	187,262	$ 24,207,936	$ 898,476			
Fire Hazard Zone System Coverage Improvement and Expansion	CP0907	371,700	371,700	371,000	378,762	371,700	385,959	371,700	393,292	371,700	400,765	371,700	408,379	371,700	416,138	$ 4,568,357	$ 700	300,000	54,000	17,700
Fire Hazard Zone System Lifecycle Upgrade Router refresh/SUAII	New	147,500	-	-	-	-	-	-	-	-	-	-	-	-		$ 147,500	$ -	119,048	21,429	7,024
Fire Hazard Zone System Simulcast Timing Reference Lifecycle Upgrade	New	115,351	-	-	-	-	-	-	-	-	-	-	-	-		$ 115,351	$ -	93,100	16,758	5,493
Sub-total VHF Special Assessment Projects		634,551	371,700	371,000	378,762	371,700	385,959	371,700	393,292	371,700	400,765	371,700	408,379	371,700	416,138	4,831,208	700			
Total Capital & Fire Special Assessment Projects		$ 2,450,067	$ 3,726,547	$ 2,827,371	$ 2,286,649	$ 1,860,441	$ 3,060,820	$ 1,624,245	$ 3,030,657	$ 1,193,133	$ 2,514,669	$ 1,834,395	$ 2,630,150	$ 1,412,215	$ 603,400	$ 29,039,144	$ 899,176			
Capital Assessment to Members																				
Mesa	67.55%	1,226,380	2,266,198	1,659,279	1,288,778	1,005,645	1,806,869	846,094	1,781,540	554,878	1,427,941	988,049	1,500,806	702,868	126,496	16,352,457				
Gilbert	19.60%	355,841	657,550	481,449	373,946	291,793	524,273	245,499	516,924	161,001	414,325	286,688	435,467	203,941	36,703	4,744,756				
Apache Junction	9.22%	167,391	309,317	226,477	175,907	137,262	246,622	115,485	243,165	75,736	194,902	134,860	204,847	95,935	17,266	2,231,971				
Ft McDowell	2.23%	40,486	74,813	54,777	42,546	33,199	59,649	27,932	58,813	18,318	47,140	32,618	49,545	23,203	4,176	539,836				
Superstition Fire & Medical	0.72%	13,072	24,155	17,686	13,737	10,719	19,259	9,018	18,989	5,914	15,220	10,531	15,997	7,492	1,348	174,297				
Queen Creek	0.65%	11,801	21,807	15,966	12,401	9,677	17,387	8,142	17,143	5,339	13,740	9,508	14,442	6,763	1,217	157,353				
Rio Verde	0.03%	545	1,006	737	572	447	802	376	791	246	634	439	667	312	56	7,262				
Sub-total	100.00%	1,815,516	3,354,846	2,456,371	1,907,887	1,488,742	2,674,861	1,252,546	2,637,365	821,432	2,113,902	1,462,693	2,221,771	1,040,514	187,262	24,207,932				
VHF Special Assessment																				
Mesa Fire & Medical	68.68%	435,810	255,283	254,802	260,133	255,283	265,076	255,283	270,112	255,283	275,244	255,283	280,474	255,283	285,804	2,446,446				
Gilbert Fire	17.16%	108,889	63,784	63,664	64,996	63,784	66,231	63,784	67,489	63,784	68,771	63,784	70,078	63,784	71,409	611,260				
Superstition Fire & Medical	10.01%	63,519	37,207	37,137	37,914	37,207	38,634	37,207	39,369	37,207	40,117	37,207	40,879	37,207	41,655	356,566				
Queen Creek Fire	3.22%	20,433	11,969	11,946	12,196	11,969	12,428	11,969	12,664	11,969	12,905	11,969	13,150	11,969	13,400	114,701				
Rio Verde Fire	0.93%	5,901	3,457	3,450	3,522	3,457	3,589	3,457	3,658	3,457	3,727	3,457	3,798	3,457	3,870	33,128				
Sub-total	100.00%	634,552	371,700	370,999	378,761	371,700	385,958	371,700	393,292	371,700	400,764	371,700	408,379	371,700	416,138	3,562,101				
Total Capital + Fire Special Assessment																				
Mesa		1,662,190	2,521,481	1,914,081	1,548,911	1,260,928	2,071,945	1,101,377	2,051,652	810,161	1,703,185	1,243,332	1,781,280	958,151	412,300	19,670,523				
Gilbert		464,730	721,334	545,113	438,942	355,577	590,504	309,283	584,413	224,785	483,096	350,472	505,545	267,725	108,112	5,573,794				
Apache Junction		167,391	309,317	226,477	175,907	137,262	246,622	115,485	243,165	75,736	194,902	134,860	204,847	95,935	17,266	2,231,971				
Ft McDowell		40,486	74,813	54,777	42,546	33,199	59,649	27,932	58,813	18,318	47,140	32,618	49,545	23,203	4,176	539,836				
Superstition Fire & Medical		76,591	61,362	54,823	51,651	47,926	57,893	46,225	58,358	43,121	55,337	47,738	56,876	44,699	43,003	657,901				
Queen Creek		32,234	33,776	27,912	24,597	21,646	29,815	20,111	29,807	17,308	26,645	21,477	27,592	18,732	14,617	312,920				
Rio Verde		6,446	4,463	4,187	4,094	3,904	4,391	3,833	4,449	3,703	4,361	3,896	4,465	3,769	3,926	52,192				
Total		2,450,068	3,726,546	2,827,370	2,286,648	1,860,442	3,060,819	1,624,246	3,030,657	1,193,132	2,514,666	1,834,393	2,630,150	1,412,214	603,400	29,039,137				

mesa·az
COMMUNICATIONS DEPARTMENT
mesaaz.gov

161 E Sixth Pl
PO Box 1466
Mesa, Arizona 85211-1466

Date: September 8, 2021

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

Through: Dale Shaw, TRWC Executive Director

From: Denis Murphy

Subject: POLICY UPDATE

- **BACKGROUND**: Bi- Directional Amplifiers (BDA) and Distributed Antenna Systems (DAS) help to ensure that first responders entering buildings can communicate with one another during an emergency. BDA/DAS systems are an extension of the TOPAZ public safety radio system and thus must be carefully designed by an experienced and knowledgeable vendor. National Fire Protection Association (NFPA) requires 99% signal coverage in all "critical areas" of the facility and 90% coverage for general areas.

- Several BDA/DAS systems have been installed improperly and have caused issues with public safety radio systems. A recent incident happened to the Reginal Wireless Cooperative (RWC). A BDA was installed and turned on without the RWC having knowledge of its existence. The BDA was accidently turned on at near full power and interfered with the nearest towers signal for several days before the RWC could secure it. Its broadcast energy was destructive which resulted in coverage issues.

I recommend adding this section to the TRWC policy document. This section/ policy is to provide standards for the deployment of radio amplification systems to improve radio signal coverage inside of buildings and underground spaces on the TOPAZ Regional Wireless Cooperative (TRWC) system.

480.644.3166 (tel)
480.644.3173 (fax)

TOPAZ REGIONAL WIRELESS COOPERATIVE	**Fire Code Compliance / In-Building Treatments**	
Owner: See Below	Created: **Nov 4, 2020**	Applicability: See Below
Category: **Operations & Maintenance**	Revised: **Nov 4, 2020**	
Page: 1 of 1	Last Review:	

This section is intended to serve as a resource for building developers, contractors, and others to ensure compliance with fire codes regarding the permitting, installation, inspection, maintenance, and operation of the in-building radio amplification systems such as Bi-Directional Antenna (BDAs) and Distributed Antenna Systems (DASs).

- Contractor Policy
- Notification of Service Activities Procedure
- Radio Amplification Systems Policy
- Waiver or Exception Policy

Links:

Safer Buildings Coalition

TOPAZ REGIONAL WIRELESS COOPERATIVE	Notification of Service Activities Procedure	
Owner: See Below	Created: Nov 4, 2020	Applicability: See Below
Category: Operations & Maintenance	Revised: Nov 4, 2020	
Page: 1 of 3	Last Review: Nov 4, 2020	

1.0 Purpose

1.1. The purpose of this policy is to establish the requirement for notification to area managers and Members of scheduled and unscheduled service affecting TRWC maintenance activities to the physical facilities, or network infrastructure associated with TRWC that have potential operational impact.

2.0 Owner

2.1. Administrative Manager

3.0 Applies to

3.1. All personnel making modifications to the physical facilities or network infrastructure components associated with TRWC.

4.0 Background

4.1. The operational stability of TRWC may be affected when the configuration of a communications facility, or a TRWC radio network hardware or software component is altered. Proper notification of scheduled and unscheduled service affecting maintenance activities will allow Members and area managers time to make necessary preparations. Conversely, unauthorized disruptions in TRWC operations caused by the lack of notification will create safety issues that must be addressed by the Administrative Manager.

5.0 Policy Statement

5.1. The Members and area managers will be properly notified of any scheduled and unscheduled service affecting TRWC maintenance activities that have potential impact to the operational capabilities of the network.

6.0 Supporting Rules

6.1. Service affecting maintenance activities related to TRWC sites and facilities, SPARC, the TRWC fiber optic and microwave system backbone will be coordinated by the Administrative Manager and will require notification of the Members and area managers.

6.2. Service affecting maintenance activities related to TRWC infrastructure components such as zone controllers, switches, routers, servers, data gateways, site controllers, databases, repeaters, and comparators will be coordinated by the Administrative Manager and will require notification of the Members and area managers.

6.3. At least forty-eight (48) hours advance notice to the Members and area managers will precede any TRWC service affecting maintenance activity.

6.4. Any service affecting maintenance activity performed on TRWC not preceded by forty-eight (48) hour notice will be considered unscheduled maintenance.

6.5. Notification of unscheduled service affecting maintenance will be made to the Members and area managers as soon as practical.

6.6. Acceptable forms of notification would include phone, pager, email, fax, or any other method as agreed to by the Administrative Manager, area managers, and Members.

6.7. At a minimum, the information contained in a notification will consist of:

6.7.1. A description of the planned maintenance activity.

6.7.2. The affected location(s) of the maintenance and the activity anticipated operational impact.

6.7.3. The scheduled start and stop time of the maintenance activity.

6.7.4. The name of department or organization responsible for performing the maintenance.

6.8. Notification of scheduled service affecting maintenance activities believed to have a significant operational impact will require a confirmation receipt of notification from the Members and area managers within 24 hours of notification, or the Administrative Manager will escalate the notification as appropriate, or re-schedule the maintenance activity.

6.9. The Administrative Manager's network management function will be notified of maintenance activities that may trigger events that would be seen by the network management function.

6.10. Contact information for the Members, area managers, and their designated alternates to be used for notification purposes will be kept in a central location and accessible from the area manager's wide area network.

6.11. No service affecting maintenance activities will be conducted during agency planned special operations.

7.0 Responsibilities

7.1. The Administrative Manager is responsible for notifying the Members and area managers of scheduled and unscheduled service affecting maintenance activities.

7.2. Area managers and Members are responsible for communicating scheduled and unscheduled TRWC maintenance activities to their respective agencies and, if necessary, their respective dispatch centers.

7.3. The Administrative Manager is responsible for notifying the network management function prior to and at the conclusion of maintenance activities

that may trigger events that would be seen by the network management function during normal business hours.

7.4. After normal working hours, the on-call technician is responsible for notifying the network management function prior to and at the conclusion of maintenance activities that may trigger events that would be seen by network management function.

7.5. Members and area managers are responsible for notifying Administrative Manager of the scheduling of planned special operations by their participating agencies.

8.0 Conditions for Exemption or Waiver

8.1. Routine maintenance activities relative to TRWC infrastructure components or TRWC sites and facilities as determined by the Administrative Manager will be exempt from the notification process.

9.0 Applicable Procedures

9.1. None.

TOPAZ REGIONAL WIRELESS COOPERATIVE	**Radio Amplification Systems Policy**	
Owner: **See Below**	Created: **Nov 4, 2020**	Applicability: **See Below**
Category: **Operations & Maintenance**	Revised: **Nov 4, 2020**	
Page: **1 of 2**	Last Review: **Nov 4, 2020**	

1.0 Purpose

1.1. The purpose of this policy is to provide standards for the deployment of radio amplification systems to improve radio signal coverage inside of buildings and underground spaces on the TOPAZ Regional Wireless Cooperative (TRWC) network.

2.0 Owner

2.1. TRWC Operations Working Group (OWG).

3.0 Applies To

3.1. Any entity installing radio amplification systems within the TRWC service area and on the Federal Communications Commission (FCC) frequencies licensed by a TRWC Member(s).

4.0 Background

4.1. Radio amplification systems are used to enhance radio signals within buildings, structures or other locations where signals would otherwise be inadequate.

4.2. Improperly installed or maintained amplification systems can cause interference or degrade radio performance.

4.3. FCC 47 CFR Part 90.219 Use of Signal Boosters and 47 CFR Part 2 FCC Certification Requirements govern use and certification of radio amplification systems.

4.4. Radio amplification systems may include Bi-Directional Amplifiers (BDA), Distributed Antenna Systems (DAS) or other active devices designed to amplify radio signals.

5.0 Policy Statement

5.1. Entities desiring to operate radio amplification systems on a TRWC Member's licensed frequencies and within the service area of the TRWC network must obtain written consent and approval from the licensee.

5.2. TRWC network licensed frequencies are managed by a Network Managing Member.

6.0 Supporting Rules

6.1. The TRWC will not be responsible for installation, upgrades, maintenance or replacement of radio amplification systems.

6.2. TRWC will provide minimum technical requirements and written consent, upon request.

6.3. The TRWC does not require entities to maintain any minimum coverage requirements within buildings or structures; however, individual cities may have their own rules or ordinances.

7.0 Responsibilities

7.1. Entities desiring to operate a radio amplification system must advise the TRWC Administrative Manager of the following:

7.1.1. Facility point of contact.

7.1.2. Technical/contractor point of contact.

7.1.3. Detailed location information (e.g., site address, building floor, room location).

7.1.4. Installation design.

7.1.5. Technical specifications (e.g., model number, FCC certification number, frequency band).

7.2. Any new radio amplification system (signal booster), must be Class A channelized signal booster. A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz. The TRWC will work with an offending entity to resolve problems due to interference, pursuant to CFR 90.173(b).

7.3. In the event of interference or malfunction of radio amplification systems, the entity responsible for its installation and/or operation shall discontinue operation of the system until it is repaired or interference has been eliminated.

8.0 Conditions for Exemption or Waiver

8.1. As provided in the Waiver or Exception Policy.

9.0 Applicable Policies and/or Procedures

9.1. As listed at http://topazrwc.org/

TOPAZ REGIONAL WIRELESS COOPERATIVE	**Waiver or Exceptions Policy**	
Owner: **See Below**	Created: **Nov 4, 2020**	Applicability: **See Below**
Category: **Operations & Maintenance**	Revised: **Nov 4, 2020**	
Page: **1 of 2**	Last Review: **Nov 4, 2020**	

1.0 Purpose

1.1. This policy is intended to provide a process for obtaining a waiver of an approved TOPAZ Regional Wireless Cooperative (TRWC) policy, or portion thereof.

2.0 Owner

2.1. TRWC Operations Working Group (OWG).

3.0 Applies To

3.1. This applies to all entities having subscribers using the operational capabilities of the TRWC.

4.0 Background

4.1. The TRWC network is a wireless infrastructure used to support the delivery of public safety and public service communications. The TRWC cannot anticipate every possible situation related to operations. Policies have been developed to guide the day-to-day decisions and activities that have a potential effect on the operational capabilities of the TRWC. The TRWC Board of Directors (Board) approves all policies and the OWG is responsible for managing the development and execution of the TRWC policies.

5.0 Policy Statement

5.1. The OWG is responsible for recommending approval or rejection of waivers or exceptions to TRWC policies to the TRWC Board.

5.2. The Board approves or rejects waivers and exceptions to TRWC policies.

6.0 Supporting Rules

6.1. Request for waiver or exception to TRWC policies will be made in writing to the TRWC Executive Director. The request must contain sufficient information for the OWG to consider the request and develop a recommendation to the TRWC Board.

6.1.1. Waivers or exceptions may be granted after assessing the impact to TRWC operations.

6.1.2. Requestors should not assume a waiver or exception will be granted.

6.2. Granted waivers or exceptions are subject to periodic review.

7.0 Responsibilities

7.1. The TRWC Executive Director is responsible for administratively managing the documentation of requests for waiver or exception to adopted TRWC policies.

8.0 Applicable Policies and/or Procedures

8.1. As listed at http://topazrwc.org/

TOPAZ
Detail of Operating and Maintenance
Fiscal Year 2020/ 2021

Year to Date Through June 30,2021

Description	Budget	Updated Forecast	YTD Forecast*	YTD Actual	$ Var From YTD Forecast Incr/(Decr)	% Var From YTD Forecast Incr/(Decr)
Personnel Services	$ 398,266	$ 398,266	$ 367,630	$ 284,732	$ (82,898)	-23%
Insurance Premiums	8,662	8,662	8,662	-	(8,662)	-100%
Legal Services	12,703	12,703	12,703	24,898	12,195	96%
Temp Services	6,114	6,114	6,114	-	(6,114)	-100%
Leases and Rents - Land	25,781	25,781	25,781	39,775	13,994	54%
Professional Services - Consulting	91,986	91,986	91,986	99,719	7,733	8%
Professional Services - Other	37,285	37,285	37,285	8,963	(28,322)	-76%
Utilities	70,000	70,000	70,000	59,626	(10,374)	-15%
Telephone	3,465	3,465	3,465	1,091	(2,374)	-69%
Association Dues	-	-	-	-	-	0%
Repairs & Maintenance	31,589	31,589	31,589	4,321	(27,268)	-86%
Equipment Usage (Vehicles)	20,380	20,380	20,380	17,135	(3,245)	-16%
All Other Services	20,000	20,000	20,000	1,500	(18,500)	-93%
Sub-total Services	327,965	327,965	327,965	257,029	(70,936)	-22%
Motorola Contract	874,214	874,214	874,214	837,310	(36,904)	-4%
Juniper Software	-	-	-	-	-	0%
Materials & Parts	25,000	25,000	25,000	27,889	2,889	12%
Non Cap Assets	25,474	25,474	25,474	355	(25,119)	-99%
All Other Commodities	-	-	-	-	-	0%
Sub-total Commodities	924,688	924,688	924,688	865,555	(59,133)	-6%
Subtotal O&M	1,650,919	1,650,919	1,620,283	1,407,315	(212,968)	-13%
Contingency - 1.5% of total O&M	25,636	25,636	25,636	-	(25,636)	-100%
VHF Operations	151,836	151,836	151,836		(151,836)	-100%
Total	$ 1,828,391	$ 1,828,391	$ 1,797,755	$ 1,407,315	$ (390,440)	-22%

*YTD Forecast represents 12 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
Detail of Capital Projects **Year to Date Through June 30, 2021**
Fiscal Year 2020/ 2021

Project	Project ID	Budgeted	YTD Forecast*	YTD Actual	$ Var From YTD Forecast Incr/(Decr)	% Var
Site Expansion #1	CP0091	-	-			0.00%
TOPAZ Voice Radio Network Upgrade	CN0022	$ -	$ -	$ -	$ -	0.00%
Upgrade Shaw Bute & Florence Gardens to P25 Phase II	CP0906	-	-	-	-	0.00%
System-of-Systems Networking	CP0438	-	-	-	-	0.00%
Fire Hazard Zone System Coverage Improvement & Expansion	CP0907	236,000	236,000	247,729	11,729	4.97%
Fire Hazard Zone System Simulcast Timing Reference Lifecycle Upgrade	LF0402POM	98,872	98,872	72,367	(26,505)	-26.81%
System-of-Systems	CP0905	-	-	-	-	0.00%
Florence Gardens ISR Site Lifecycle upgrade	LF0224	-	-	-	-	0.00%
Radio & Core Sites Battery Backup Lifecycle Upgrade	LF0266	-	-	-	-	0.00%
Radio Sites Emergency Power Upgrade	LF0226	106,200	106,200	66,375	(39,825)	-37.50%
Communications Building UPS Battery Replacement	LF0228	-	-	-	-	0.00%
Internet Protocol Network Routers & Switches Upgrade	LF0248	-	-	-	-	0.00%
Antenna & Transmission Lines Lifecycle Upgrade	LF0282	236,000	236,000	199,454	(36,546)	-15.49%
Consulting Services for VHF & 7/800 MHz Coverage Expansion		-	-			0.00%
Total Capital Projects		$ 677,072	$ 677,072	$ 585,925	$ (91,147)	-13.46%
Capital Assessment to Members						
Mesa	71.96%	1,605,952	1,605,952	520,095	(1,085,857)	-67.61%
Gilbert	16.62%	371,038	371,038	153,376	(217,662)	-58.66%
Apache Junction	8.27%	184,618	184,618	76,404	(108,214)	-58.62%
Ft McDowell	1.90%	42,327	42,327	14,850	(27,477)	-64.92%
Superstition Fire & Medical	0.76%	16,886	16,886	6,371	(10,515)	-62.27%
Queen Creek	0.46%	10,357	10,357	5,663	(4,694)	-45.32%
Rio Verde	0.03%	675	675	268	(407)	-60.30%
Total Assessment to Members	100.00%	$ 2,231,853	$ 2,231,853	$ 777,027	$ (1,454,826)	-65.18%

*YTD Forecast represents 12 months of project costs plus any contractual expenses already incurred (i.e. one time payments).

TOPAZ
Detail of Operating and Maintenance
Fiscal Year 2021/ 2022

	Year to Date Through August 31,2021					
Description	**Budget**	**Updated Forecast**	**YTD Forecast***	**YTD Actual**	**$ Var From YTD Forecast Incr/(Decr)**	**% Var From YTD Forecast**
Personnel Services	$ 354,883	$ 354,883	$ 54,597	$ 43,940	$ (10,657)	-20%
Insurance Premiums	8,827	8,827	1,471	-	(1,471)	-100%
Legal Services	-	-	-	874	874	0%
Temp Services	6,230	6,230	1,038	-	(1,038)	-100%
Leases and Rents - Land	26,271	26,271	4,379	15,688	11,309	258%
Professional Services - Consulting	93,734	93,734	15,622	15,319	(303)	-2%
Professional Services - Other-combining legal, consulting	115,134	115,134	19,189	2,912	(16,277)	-85%
Utilities	71,330	71,330	11,888	8,950	(2,938)	-25%
Telephone	3,531	3,531	589	55	(534)	-91%
Association Dues	-	-	-	-	-	0%
Repairs & Maintenance	32,189	32,189	5,365	-	(5,365)	-100%
Equipment Usage (Vehicles)	20,767	20,767	3,461	1,531	(1,930)	-56%
All Other Services	40,000	40,000	6,667	-	(6,667)	-100%
Sub-total Services	418,013	418,013	69,669	45,329	(24,340)	-35%
Motorola Contract	890,824	890,824	148,471	-	(148,471)	-100%
Juniper Software	43,000	43,000	7,167	-	(7,167)	-100%
Materials & Parts	30,475	30,475	5,079	-	(5,079)	-100%
Non Cap Assets	12,980	12,980	2,163	-	(2,163)	-100%
All Other Commodities	-	-	-	-	-	0%
Sub-total Commodities	977,279	977,279	162,880	-	(162,880)	-100%
Subtotal O&M	1,750,175	1,750,175	287,146	89,269	(197,877)	-69%
Contingency - 1.5% of total O&M	27,380	27,380	4,563	-	(4,563)	-100%
VHF Operations	54,720	54,720	9,120		(9,120)	-100%
Total	$ 1,832,275	$ 1,832,275	$ 300,829	$ 89,269	$ (211,560)	-70%

*YTD Forecast 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
Detail of Capital Projects **Year to Date Through August 31, 2021**
Fiscal Year 2021/ 2022

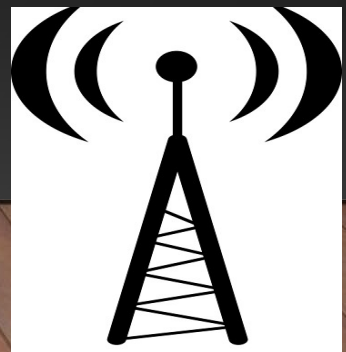
Project	Project ID	Budgeted	YTD Forecast*	YTD Actual	$ Var From YTD Forecast Incr/(Decr)	% Var
Site Expansion #1	CP0091	1,350,000	225,000	-	$ (225,000)	-100.00%
TOPAZ Voice Radio Network Upgrade	CN0022	$ -	-	-	$ -	0.00%
Upgrade Shaw Bute & Florence Gardens to P25 Phase II	CP0906	287,406	47,901	-	(47,901)	-100.00%
System-of-Systems Networking	CP0438	-	-	-	-	0.00%
Fire Hazard Zone System Coverage Improvement & Expansion	CP0907	-	-	5,400	5,400	0.00%
Fire Hazard Zone System Simulcast Timing Reference Lifecycle Upgrade	LF0402POM	-	-	-	-	0.00%
System-of-Systems	CP0905	-	-	-	-	0.00%
Florence Gardens ISR Site Lifecycle upgrade	LF0224	-	-	-	-	0.00%
Radio & Core Sites Battery Backup Lifecycle Upgrade	LF0266	31,910	5,318	-	(5,318)	0.00%
Radio Sites Emergency Power Upgrade	LF0226	106,200	17,700	-	(17,700)	-100.00%
Communications Building UPS Battery Replacement	LF0228	-	-	-	-	0.00%
Internet Protocol Network Routers & Switches Upgrade	LF0248	-	-	-	-	0.00%
Antenna & Transmission Lines Lifecycle Upgrade	LF0282	-	-	-	-	0.00%
Consulting Services for VHF & 7/800 MHz Coverage Expansion		-	-			0.00%
Total Capital Projects		$ 1,775,516	$ 295,919	$ 5,400	$ (290,519)	-98.18%
Capital Assessment to Members						
Mesa	71.96%	1,605,952	267,659	29,437	(238,222)	-89.00%
Gilbert	16.62%	371,038	61,840	8,527	(53,313)	-86.21%
Apache Junction	8.27%	184,618	30,770	3,998	(26,772)	-87.01%
Ft McDowell	1.90%	42,327	7,055	971	(6,084)	-86.24%
Superstition Fire & Medical	0.76%	16,886	2,814	311	(2,503)	-88.95%
Queen Creek	0.46%	10,357	1,726	282	(1,444)	-83.66%
Rio Verde	0.03%	675	113	13	(100)	-88.50%
Total Assessment to Members	100.00%	$ 2,231,853	$ 371,977	$ 43,539	$ (328,438)	-88.30%

*YTD Forecast represents 2 months of project costs plus any contractual expenses already incurred (i.e. one time payments).

TRWC
27SEP2021
ADMINISTRATOR UPDATE

IN PROGRESS TOPAZ PROJECTS

- Purchase of Land East of FS264 off RT60 for construction of a new radio tower
  - Purchase is scheduled to be completed in October
- Working with Mesa Engineering on construction of a new tower facility on that property

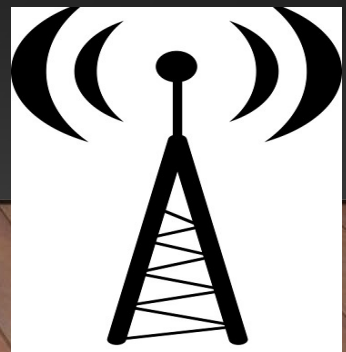


TOPAZ
REGIONAL WIRELESS COOPERATIVE

PARTNERING FOR INTEROPERABILITY

- VHF Simulcast Timing References Replacement

- First-Net PTT- P25 is installed and in the testing phase



TOPAZ
REGIONAL WIRELESS COOPERATIVE

PARTNERING FOR INTEROPERABILITY

- Upgrade Shaw Butte and Florence Gardens to P25 Phase II (TDMA), schedule to start mid January
- SUAII 2021 upgrade to the TOPAZ core equipment is underway, system load will take place the week of 1NOV2021

TOPAZ
REGIONAL WIRELESS COOPERATIVE

PARTNERING FOR INTEROPERABILITY

- Fire VHF Network Router Replacement
  - Scheduled to start 2nd QTR 2022.
    - Motorola has reduced this price by adding them to the SUAII plan

TOPAZ
REGIONAL WIRELESS COOPERATIVE

PARTNERING FOR INTEROPERABILITY

- VHF System Coverage improvements
  - Two more receive sites scheduled for this FY
- Radio site emergency power upgrade continues
  - Two per year until FY23/24

TOPAZ

REGIONAL WIRELESS COOPERATIVE

PARTNERING FOR INTEROPERABILITY

- TOPAZ 800 MHZ SIMULCAST - 100%
  - ONE SITE TOOK A 40sec INTERUPTION
- TOPAZ ISR (HIGH SITES) - 99.999

  SHA - 100%

  FLO - 99.998

  TPK – 100%