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Governor

WILLIAM BELL
Director

ARIZONA DEPARTMENT OF ADMINISTRATION

OFFICE OF THE DIRECTOR

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November 4, 2008

The Honorable Robert L. Burns, Chairman
Joint Legislative Budget Committee
Arizona State Senate
1700 W. Washington Street
Phoenix, AZ 85007

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OFFICE OF THE PRESIDENT

Dear Senator Burns:

As stipulated in the Laws of 1998, 4th Special Session, Chapter 6, Section 5 – Emergency telecommunications fund: report of expenditure plans, the Department of Administration shall report its expenditure plans to the Joint Legislative Budget Committee for review. In fulfillment of this requirement, I am enclosing:

- The Wireless Program Report for fiscal year 2008.
- The 9-1-1 financial forecast for fiscal years 2009 through 2013 incorporating the Fund Balance transfers to the General Fund during FY2003, FY2004 and FY2009.
- The Status of Arizona 9-1-1 and the Estimated Costs and Deployment Schedule to Implement Wireless Phase II.
- Arizona Deployment Map
- State Fee Comparison and Organization Structure.
- The 9-1-1 Phase II Wireless Implementation Plan.
- State of Arizona 9-1-1 GIS Standards.

Please note that the financial forecast shows a program deficit in fiscal year 2011. With additional Wireless Phase II deployments and transitioning to an IP Enabled Network, costs will continue to increase. This anticipated deficit will prevent the full implementation of the critical wireless program and may require a revenue enhancement or increase.

Should you have any questions, please contact me at 602-542-1500 or Barbara Jaeger, the State 9-1-1 Administrator at 602-542-0911.

Sincerely,

William Bell
Director

- c2 The Honorable Timothy S. Bee, Senate President
- The Honorable James P. Weiers, Speaker of the House of Representatives
- Mr. Richard Stavneak, Staff Director, JLBC
- Mr. James Apperson, Director, OSPB

Enclosures (4)

Arizona Department of Administration
State 9-1-1 Office
Wireless Program Report
2008

The State 9-1-1 program was established, through legislation in 1985, to provide a funding mechanism for the deployment and on-going costs of providing 9-1-1 services in Arizona.

Under A.R.S. § Title 43, Article 6, Telecommunications Services Excise Tax, a tax is levied for each activated wire line, including Voice Over Internet Protocol (VoIP) access and wireless service account for the purpose of financing emergency telecommunications services. Current law reduced the tax from thirty-seven cents per month to twenty-eight cents per month in July 1, 2006. The tax was further reduced to twenty cents per month as of July 1, 2007.

The funds collected are administered by the Arizona Department of Administration under A.R.S. § 41-704 and rules have been established that govern the allowable expenditures and funding eligibility requirements by communities and political sub-divisions in the State.

Components eligible for funding include necessary and/or appropriate network, equipment and maintenance to handle the processing of 9-1-1 emergency calls. Of the revenue generated, the program distributes 98% of the fund for 9-1-1 call service delivery of wire line and wireless services. One percent of the revenue is allocated for local network management of contracts through the 9-1-1 system coordinators.

An amount not to exceed 2% of the annual revenue is used by the Arizona Department of Administration for program oversight expenditures.

Accounting methodology is in place to track all expenditures by community and/or 9-1-1 system. In July 2007, the Department of Revenue transitioned to collecting the tax as one entity and identifies this collection code as 9-1-1, no longer breaking out the wire line and wireless revenue.

All Public Safety Answering Point (PSAP) equipment used to answer and handle 9-1-1 calls are budgeted under wire line expenditures, although it should be understood that the equipment is used to answer both wire line and wireless 9-1-1 calls. Mapping equipment for Wireless Phase II is broken out and budgeted under Wireless Phase II equipment.

The Arizona 9-1-1 Wireless Phase II Implementation Plan has been updated to expand the program moving specified sites toward deployment of Phase II Wireless. Costs associated with legislative cost recovery and a copy of the plan is enclosed. The Statewide System Project plan covering each 9-1-1 System for FY08 has been updated and is also attached.

The wireless program criteria established for rollouts, stipulate that Enhanced 9-1-1 (voice, telephone number and address) has been completed for either an entire county or significant portions of a county. Each county or system must complete a Wireless 9-1-1 Service Plan, utilizing the format specified in the State guidelines and appoint a single point of contact for each county or area. The Geographic Information System (GIS) data must be completed and meet the same 95% accuracy rate as established for Enhanced Wire Line 9-1-1. Equipment mapping components will be installed prior to request for service letters being sent to the wireless carriers for Wireless Phase II service.

Wireless Deployment

Significant progress continues to be made in the deployment of Wireless Phase II. The two major regions in the state, Maricopa and Pima have completed their Phase II deployments constituting approximately 80% of the state's population. The Northern Yavapai County area, which encompasses the City of Cottonwood, City of Sedona, Town of Camp Verde and surrounding Yavapai County has also completed Phase II deployment.

During FY08, additional funds were expended from the \$1 million dollar Public Safety Answering Point (PSAP) Readiness Fund grant to complete the Geographic Information Systems (GIS) work necessary for The City of Page and Mohave, Pinal and southern Yavapai Counties. GIS work for Graham and Santa Cruz Counties completed in the fall of 2006 and both Graham and Santa Cruz Counties completed their Phase II deployment in spring 2007. GIS work for Pinal County completed fourth quarter FY2007 and deployment for Pinal County and the Gila River Indian Community completed in March 2008.

With the completion of these projects, Wireless Phase II service is available from Nogales all the way to Phoenix. Pinal County is still considered one of the fastest growing county's in the nation and with the implementation of Wireless Phase II; the citizens will have an added level of public safety protection.

With the funds remaining in the grant, the PSAP Readiness Board authorized an expansion to the original Scope of Work. GIS work is currently underway in southern Yavapai County, Mohave County and Yuma County.

Cochise County's data has met the 9-1-1 GIS standard of 95% accuracy and mapping equipment has been ordered for all eight Public Safety Answering Points. Once the equipment is installed and operational, request for Wireless Phase II service letters will be sent to the carriers. There have been some delays in moving forward with Wireless Phase II in this county. One being a proposed physical move by two of the PSAPs and the other is limited resources available by the vendor for the sites. All equipment has now been ordered and installation dates have been set.

Southern Yavapai County has also met the 9-1-1 GIS standard and equipment for the Prescott Regional Center has been ordered and is scheduled for installation second quarter FY09. Once installed, request for Wireless Phase II service letters will be sent to the wireless carriers.

The GIS work in Mohave County and Yuma County will both be completed during FY09.

Wireless Expenditures

During FY08, the majority of one time charges were expended for completed Wireless Phase II projects in the Gila River Indian Community and Pinal County.

The FY08 expenditures for Wireless Phase I & II are outlined in the table below.

System	FY08 Expenditures	PI/PII
Colorado City	\$ 5	transition
Flagstaff	\$ 8,705	PII
Gila River Tribal	\$ 7,192	PII
Graham County	\$ 52,253	PII
Maricopa Region	\$ 2,538,037	PII
Mohave County	\$ 1,066	transition
Pima County	\$ 1,315,833	PII
Pinal County	\$ 545,614	PII
Santa Cruz County	\$ 66,831	PII
Yavapai County No.	\$ 187,325	PII
City of Page	\$ 178,717	PI/PII
City of Winslow	\$ 25,173	PI
	\$ 4,858,594	

It should be emphasized that the 9-1-1 answering equipment is fiscally allocated to wire line equipment although this equipment handles calls for both wire line and wireless 9-1-1 calls. The acquisition of separate mapping equipment has been allocated to wireless Phase II expenditures.

The FY09 budget includes the following expenditures for systems currently Wireless Phase I and/or Phase II, those adding in new systems, and those that are close to or have completed their GIS requirements.

Expenditures include network components, both wireless carrier costs and selective router costs.

System	FY09 Budget	PI/PII
Cochise County	\$ 369,405	to PII
Colorado City	\$ 45,064	to PII
Gila County	\$ 2	transition
Gila River Indian Community	\$ 10,980	PII
Graham County	\$ 54,180	PII
Maricopa Region	\$ 3,008,620	PII
Mohave County	\$ 789,978	to PII
Navajo Co/Apache Co	\$ 1,800	transition
Page	\$ 132,620	PI to PII
Pima County	\$ 1,447,920	PII
Pinal County	\$ 372,780	to PII
Santa Cruz County	\$ 75,660	PII
Winslow	\$ 27,900	PI
Yavapai No.	\$ 483,778	PII
Yavapai So.	\$ 329,085	to PII
Yuma County	\$ 175,304	to PII
	\$ 7,325,076	

Additional expenditures budgeted for fiscal year 2009 includes the implementation of a frame relay network for deployment of an Enterprise Mapping System. With significant county boundary issues recognized, this system allows GIS data to be distributed to the 9-1-1 centers within their county or share the data with other counties. These costs are already being expended in the Maricopa Region, Pima County and now Pinal County. When new map data is available, that data can be distributed via the frame relay network and updated information can be published more efficiently.

FY07 brought significant changes within the wireless industry and thus has positively affected the future of the Arizona 9-1-1 program. Several mergers and acquisitions reduced the number of wireless network providers and therefore reduced the cost recovery charged by the carriers. This and with a change of carrier philosophy some of the carriers have opted to not seek cost recovery from the State 9-1-1 program. They have instead opted to seek self recovery from their customers. This does not affect the costs associated with the selective routers, but does affect the amount billed by the individual carriers.

With an emphasis toward Homeland Security, the 9-1-1 program continues to fund the Telecommunications Service Priority (TSP) provisioning which was added in FY07. This federal program is designed to ensure elevated network restoration to anyone who registers and pays for the service. In the event of a national disaster and federal intervention is required for network continuity, the service will ensure that Arizona's 9-1-1 systems will be restored in a timely manner.

All network components including 9-1-1 circuits, Automatic Location Identification circuits, emergency back circuits and circuits that run to all selective routers have been included in the service package.

The State 9-1-1 Office strives to reduce costs for network and equipment components. During FY07, negotiations with Qwest changed the billing structure for the wireless selective router charges, which has proven to reduce costs for call delivery.

Revenue – FY09 Projections

Over the past two years there has been almost a 40% reduction in revenue. This can be attributed to the reduction in the tax from \$.37 in FY06, to \$.28 in FY07 and \$.20 in FY08. The revenue reduction realized from FY06 through FY08 was more than \$19,878,453. An additional \$1,141,081 is projected from FY08 through FY09. The reduction for FY09 in projected revenues is based on an overall 5% increase in carrier services and the current \$.20/mo. 9-1-1 tax rate. Additionally, with the Department of Revenue issued opinion in 2008, requiring the Voice over Internet Protocol (VoIP) carriers to remit the 911 tax, there has not been a significant increase in revenue realized.

The annual projected revenue for FY09, is estimated at \$17,332,355. The interest income for the same time period is \$1,435,204. The total estimated income for the fiscal year beginning July 1, 2008 is \$18,767,559. The budget for FY09 has been established at \$28,815,778. The difference between expenditures and projected revenue will utilize funds from prior years. There will be less interest income realized due to the State Legislature's fund transfer of \$25,091,600 from the 9-1-1 Program Fund to the State's general fund.

The 9-1-1 Excise Tax revenue for FY08 closed at \$19,908,639, a 28% reduction in revenue over FY07. Last year, the Department of Revenue announced they would no longer break out the wireless revenue generated from the ExciseTax, therefore, the total 9-1-1 revenue, will only have to be evaluated for future years.

In the FY07 report, the Department of Revenue still broke out the wire-line and wireless revenue and not including the interest income brought in \$23,074,168 in revenue. This amounts to approximately 6.8 million customers. The fiscal end report for FY08, indicated that that total amount of customers for both wire-line, wireless and VoIP brought in \$17,332,349, not including interest income which amounts to 7.2 million customers. Although this is a 5% increase in customer base between FY07 and FY08, estimates for the income for FY09 shows no increase.

	FY07 Actual	FY08 Actual	% of Difference
	@\$.28	@\$.20	FY07-FY08
Excise Tax	23,074,168	17,332,349	-33%
Interest	2,321,033	2,576,290	10%
	25,395,201	19,908,639	-28%

In preparing the 911 Project Plan through FY13, the tax decrease, customer base and reduced fees has been taken into consideration indicating that the program will reach a deficit in FY11.

One area where the reductions are immediately evident and is service affecting is the 3% administrative fees. Of this three percent, 2% is used for ADOA administrative services and 1% is distributed to the local level for network contract services.

The State 9-1-1 Office has five full time staff members allocated to the program, but currently only has sufficient funds to cover three and a ½ FTE's, There is currently four staff members but the difference is being covered by the project management funds out of the grant fund. These individuals not only have fiscal oversight, but work closely with the communities to deploy and support 9-1-1. With the 40% reduction in revenues over the two year time frame and the 2% cap on administrative spending, staff has been reduced by one position during FY08 and additional staff reductions are forthcoming. This impact may delay the deployment of Wireless PII.

The Future of 9-1-1

The 911 Project Plan addresses the need to transition to a more robust and technology forward network in coming years. The IP enabled network or Next Generation 9-1-1 designs are on the drawing board today. Industry standards are in the development phase, therefore, costs cannot be determined. The move toward a data network that provides ubiquitous service will ensure that calls can be routed anywhere without current boundary restrictions. New networks will provide the ability to utilize text messaging, as well as video streaming in future years.

During FY08, a collaborative effort between the State, Qwest, Intrado and Positron 911 systems was developed to design and implement a Next Generation (NG) trial in Arizona. It was determined that Gila County would be an ideal test bed for this project. The northern portion of Gila County is served out a separate selective router than the southern portion of Gila County as a result of a LATA boundary division. The installation of this Next Generation network including installation of soft switches, will allow for reliable and time sensitive transfer of calls. The four PSAPs in Gila County will be changed out to Positron Viper system designed specifically to transition to NG technology. During the trial, testing will include digital network features for text messaging, video streaming, IP ALI (Automatic Location Information), interconnection with the legacy networks, feature functionality, meshing and redundancy. This project is scheduled to complete by the end of FY09 at a cost of \$1.6 million and should be noted that throughout this project all legacy network components will require continued support. Once all components have been successfully tested and are up and running, it is the intention to transition all sites to the new digital network and then remove the existing technology in Gila County.

The 9-1-1 system was designed to ensure that in an emergency, citizens have one reliable number to call for public safety assistance. The State 9-1-1 program strives to ensure that this goal is met in the most efficient and cost effective manner possible.

Status of Arizona 9-1-1

9-1-1 System	Basic	E/ANI	E9-1-1	Phase I	Phase II	Program Plan FY09
Benson			X	Fy09	FY09	Mapping Equipment/Deploy Wireless PII
Camp Verde					X	Proposed Enterprise Mapping Network
Clifton			X	FY11	FY11	Complete County Addressing
Cochise County			X	FY09	FY09	Mapping Equipment/Deploy Wireless PII
Colorado City			X	FY09	FY09	Upgrade Equipment/Deploy Wireless PII
Cottonwood					X	Proposed Enterprise Mapping Network
Douglas			X	FY09	FY09	Mapping Equipment/Deploy Wireless PII
Flagstaff/Coconino County			X	FY10	FY10	Continue County Addressing
Gila County North			X	FY10	FY10	Next Generation 911 Proof of Concept
Gila County South		X	FY09	FY10	FY10	Complete Enhanced 9-1-1
Gila River Tribal Property					X	
Graham County					X	
Grand Canyon		X	FY10	FY10	FY10	
Greenlee County			X	FY11	FY11	Complete County Addressing
Hopi Reservation						Addressing Program/Service Plan Development
Huachcua City			X	FY09	FY09	Mapping Equipment/Deploy Wireless PII
La Paz County			X	FY11	FY11	
Maricopa County					X	Equipment Replacement
Mohave County			X	FY09	FY09	Complete GIS/Deploy Wireless PII
Navajo Reservation						E911 Service Plan Development
Northeastern Ariz. Users Asso.(Navajo/Apache Co)			X	FY11	FY11	
Page				X	FY09	Deploy Wireless PII
Payson			X	FY10	FY10	Next Generation 911 Proof of Concept
Pinal County					X	Equipment Upgrades
Prescott			X	FY09	FY09	Mapping Equipment/Deploy Wireless PII
Pima County					X	Equipment Upgrades
San Carlos Reservation						Service Plan Development
Santa Cruz Co					X	Equipment Upgrades
Sedona					X	Proposed Enterprise Mapping Network
Sierra Vista			X	FY09	FY09	Mapping Equipment/Deploy Wireless PII
Supai Reservation		X	FY10	FY10	FY10	
Willcox			X	Fy09	FY09	Mapping Equipment/Deploy Wireless PII
Williams			X	FY10	FY10	
Winslow				X	FY11	
Yavapai County North					X	Proposed Enterprise Mapping Network
Yavapai County South			X	FY09	FY09	Deployment Wireless PII
Yuma County			X	FY09	FY09	Complete GIS/Deploy Wireless PII

	None
	Basic
	E w/ANI
	E9-1-1
	WPI
	WPPI

The Estimated Costs and Deployment Schedule to Implement Wireless Phase II

ADOA has worked in concert with the political subdivisions to ensure compliance with the established requirements prior to deployment Wireless Phase I and Phase II. PSAPs that have not completed Phase I are being encouraged to move directly to Phase II. The 9-1-1 Program Office has established a 12 month time standard for completion of a Phase I or Phase II project. Direct deployment to Wireless Phase II has cut down on the time necessary and reduced some of the costs.

The Wireless Phase II Systems Deployment Timeline and estimated implementation costs are listed below in chart 1. Projections are based on figures obtained from the Local Exchange Carrier (LEC), equipment vendors and the Wireless Carriers. The information in chart 2 outlines implementation and going costs for Wireless Phase I and Phase II. Additionally, these figures were obtained through the cooperative effort of the Local Exchange Carriers and the Wireless Carriers. The State 9-1-1 Office continues to negotiate with vendors to reduce the costs.

The costs outlined below may not match those figures outlined in the 9-1-1 Project Plan and it is possible that projects will need to be delayed until sufficient revenue is available.

It should be noted that three Tribal Nations have not been included in the projections. Service Plans for 9-1-1 deployment have not yet been submitted for funding consideration by the Navajo Nation, Hopi Tribe or San Carlos Tribe.

The Navajo Nation continues to work on completing their 9-1-1 Service Plan in an effort to be eligible for funding. Over the past year, a significant amount of work has been accomplished within the Navajo Nation governing authority to obtain addressing concurrence with all chapters.

The ADOA 9-1-1 Office has an outreach program in place designed to work with the other tribes to help them to address deployment issues.

Chart 1

9-1-1 System	FY	LEC and Wireless Carrier Costs	Equipment & Misc. Products and Services	Totals (Tax Included)
Apache/Navajo	FY11	\$ 411,800	\$ 1,220,949	\$ 1,632,749
Cochise	FY09	\$ 247,617	\$ 589,491	\$ 837,108
Coconino	FY10	\$ 848,758	\$ 848,758	\$ 1,697,516
Gila	FY10	\$ 190,000	\$ 640,631	\$ 830,631
Gila River Indian Community - Implemented	FY08			
Graham - Implemented	FY07			\$ -
Greenlee	FY11	\$ 80,000	\$ 401,189	\$ 481,189
La Paz	FY11	\$ 80,000	\$ 177,908	\$ 257,908
Maricopa Implemented	FY06			\$ -
Mohave	FY09	\$ 381,370	\$ 222,480	\$ 603,850
Page	FY09	\$ 18,705	\$ 107,217	\$ 125,922
Pima - Implemented	FY06			\$ -
Pinal Implemented	FY08			
Santa Cruz implemented	FY07			\$ -
Winslow	FY11	\$ 85,500	\$ 107,300	\$ 192,800
Yavapai, No - Implemented	FY06			\$ -
Yavapai, So	FY09	\$ 274,794	\$ 190,240	\$ 465,034
Yuma	FY09	\$ 730,905	\$ 1,190,086	\$ 1,920,991
Total		\$ 3,349,449	\$ 5,696,249	\$ 9,045,698

Chart 2

E9-1-1 Wireless Phase I II
Actual and Projected Expenditures
FY08-FY2013

FY	9-1-1 System	Wireless Network	Equipment Etc.	Totals
2008 Expended				
	Cochise	\$ 594	\$ -	\$ 594
	Colorado City	\$ 5	\$ -	\$ 5
	Flagstaff	\$ 1,538	\$ 7,167	\$ 8,705
	Gila River Tribal	\$ 3,132	\$ 4,060	\$ 7,192
	Graham	\$ 52,253	\$ -	\$ 52,253
	Maricopa	\$ 2,527,251	\$ -	\$ 2,527,251
	Mohave	\$ 1,066	\$ -	\$ 1,066
	Page	\$ 75,073	\$ 103,644	\$ 178,717
	Pima	\$ 1,315,833	\$ -	\$ 1,315,833
	Pinal	\$ 334,527	\$ 211,086	\$ 545,613
	Winslow	\$ 25,173	\$ -	\$ 25,173
	Yavapai No.	\$ 187,325	\$ -	\$ 187,325
2008 Total		\$ 4,523,770	\$ 325,957	\$ 4,662,402
2009 Budget				
	Cochise	\$ 163,455.00	\$ 333,315.00	\$ 496,770
	Coconino	\$ 6,003.00	\$ 24,192.00	\$ 30,195
	Colorado City	\$ 1,000	\$ 44,064	\$ 45,064
	Gila	\$ 1	\$ -	\$ 1
	Gila River Trical	\$ 9,900	\$ 1,080	\$ 10,980
	Graham	\$ 53,100	\$ 1,080	\$ 54,180
	Maricopa	\$ 2,987,020	\$ 21,600	\$ 3,008,620
	Mohave	\$ 362,026	\$ 436,752	\$ 798,778
	Navajo/Apache	\$ 7,020	\$ -	\$ 7,020
	Page	\$ 101,660	\$ 2,160	\$ 103,820
	Pima	\$ 1,407,960	\$ 39,960	\$ 1,447,920
	Pinal	\$ 367,380	\$ 5,400	\$ 372,780
	Santa Cruz	\$ 73,500	\$ 2,160	\$ 75,660
	Winslow	\$ 27,900	\$ -	\$ 27,900
	Yavapai No.	\$ 228,944	\$ 244,640	\$ 473,584
	Yavapai So.	\$ 187,517	\$ 141,568	\$ 329,085
	Yuma	\$ 33,122	\$ 142,182	\$ 175,304
2009 Total		\$ 6,017,508	\$ 1,440,153	\$ 7,457,661
2010				
	Cochise	\$ 129,345	\$ 10,000	\$ 139,345
	Coconino	\$ 700,000	\$ 848,758	\$ 1,548,758
	Gila	\$ 150,000	\$ 20,000	\$ 170,000
	Gila River Tribal	\$ 35,000	\$ 10,500	\$ 45,500
	Graham	\$ 58,480	\$ 17,716	\$ 76,196
	Maricopa	\$ 3,036,818	\$ 50,000	\$ 3,086,818
	Mohave	\$ 235,053	\$ 10,000	\$ 245,053
	Navajo/Apache	\$ 10,000	\$ 15,000	\$ 25,000
	Page	\$ 90,250	\$ 10,000	\$ 100,250
	Pima	\$ 1,300,000	\$ 79,387	\$ 1,379,387
	Pinal	\$ 363,445	\$ 31,561	\$ 395,006
	Santa Cruz	\$ 81,360	\$ 14,309	\$ 95,669
	Winslow	\$ 85,500	\$ 10,000	\$ 95,500
	Yavapai No.	\$ 170,632	\$ 10,000	\$ 180,632
	Yavapai So.	\$ 97,430	\$ 20,000	\$ 117,430
	Yuma	\$ 110,000	\$ 20,000	\$ 130,000
2010 Total		\$ 6,653,313	\$ 1,177,231	\$ 7,830,544

Chart 2

E9-1-1 Wireless Phase I II
Actual and Projected Expenditures
FY08-FY2013
September 2008

FY	9-1-1 System	LEC Network	Equipment Etc.	Totals
2011	Cochise	\$ 165,000	\$ 10,000	\$ 175,000
	Coconino	\$ 185,000	\$ 10,000	\$ 195,000
	Gila	\$ 60,000	\$ 10,000	\$ 70,000
	Gila River Tribal	\$ 35,000	\$ 10,000	\$ 45,000
	Graham	\$ 57,400	\$ 15,000	\$ 72,400
	Greenlee	\$ 80,000	\$ 200,000	\$ 280,000
	La Paz	\$ 80,000	\$ 100,000	\$ 180,000
	Maricopa	\$ 3,000,000	\$ 1,076,784	\$ 4,076,784
	Mohave	\$ 200,000	\$ 10,000	\$ 210,000
	Navajo/Apache	\$ 26,800	\$ 10,000	\$ 36,800
	Page	\$ 90,250	\$ 15,000	\$ 105,250
	Pima	\$ 1,500,000	\$ 200,000	\$ 1,700,000
	Pinal	\$ 350,000	\$ 25,000	\$ 375,000
	Santa Cruz	\$ 79,200	\$ 50,000	\$ 129,200
	Winslow	\$ 85,500	\$ 15,000	\$ 100,500
	Yavapai No	\$ 200,000	\$ 20,000	\$ 220,000
	Yavapai So	\$ 100,000	\$ 20,000	\$ 120,000
	Yuma	\$ 121,137	\$ 10,000	\$ 131,137
	2011 Total	\$ 6,415,287	\$ 1,806,784	\$ 8,222,071
2012	Cochise	\$ 300,000	\$ 20,000	\$ 320,000
	Coconino	\$ 262,488	\$ 10,000	\$ 272,488
	Gila	\$ 100,000	\$ 10,000	\$ 110,000
	Gila River Tribal	\$ 31,000	\$ 8,310	\$ 39,310
	Graham	\$ 67,111	\$ 10,000	\$ 77,111
	Greenlee	\$ 45,000	\$ 10,000	\$ 55,000
	La Paz	\$ 67,270	\$ 10,000	\$ 77,270
	Maricopa	\$ 3,138,658	\$ 225,000	\$ 3,363,658
	Mohave	\$ 210,000	\$ 10,000	\$ 220,000
	Navajo/Apache	\$ 411,800	\$ 1,220,900	\$ 1,632,700
	Page	\$ 94,762	\$ 35,000	\$ 129,762
	Pima	\$ 1,303,004	\$ 50,000	\$ 1,353,004
	Pinal	\$ 375,335	\$ 25,000	\$ 400,335
	Santa Cruz	\$ 80,000	\$ 2,500	\$ 82,500
	Winslow	\$ 32,028	\$ 2,500	\$ 34,528
	Yavapai No.	\$ 210,000	\$ 5,300	\$ 215,300
	Yavapai So	\$ 110,000	\$ 8,016	\$ 118,016
	Yuma	\$ 127,193	\$ 5,000	\$ 132,193
	2012 Total	\$ 6,965,649	\$ 1,667,526	\$ 8,633,175

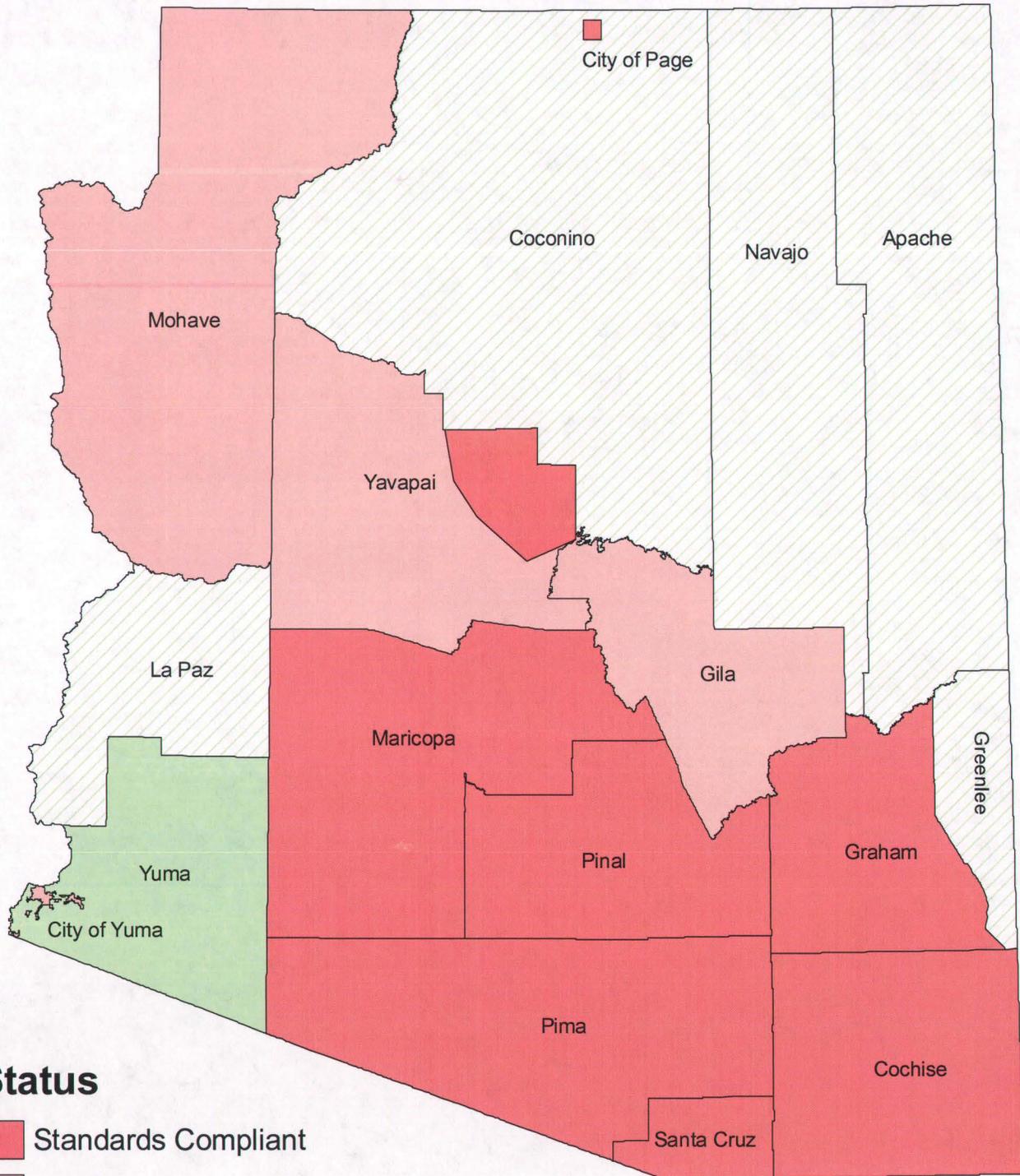
Chart 2

**E9-1-1 Wireless Phase I II
Actual and Projected Expenditures
FY08-FY2013**

FY	9-1-1 System	LEC Network	Equipment Etc.	Totals
2013	Cochise	\$ 400,000	\$ 350,000	\$ 750,000
	Coconino	\$ 268,800	\$ 150,000	\$ 418,800
	Gila	\$ 28,240	\$ 100,000	\$ 128,240
	Gila River Tribal	\$ 32,550	\$ 100,000	\$ 132,550
	Graham	\$ 70,633	\$ 100,000	\$ 170,633
	Greenlee	\$ 26,080	\$ 50,000	\$ 76,080
	La Paz	\$ 26,080	\$ 100,000	\$ 126,080
	Maricopa	\$ 3,348,090	\$ 500,000	\$ 3,848,090
	Mohave	\$ 252,226	\$ 75,000	\$ 327,226
	Navajo/Apache	\$ 34,360	\$ 100,000	\$ 134,360
	Page	\$ 99,500	\$ 50,000	\$ 149,500
	Pima	\$ 1,386,565	\$ 175,000	\$ 1,561,565
	Pinal	\$ 394,744	\$ 75,000	\$ 469,744
	Santa Cruz	\$ 87,318	\$ 40,000	\$ 127,318
	Winslow	\$ 33,629	\$ 30,000	\$ 63,629
	Yavapai No	\$ 262,256	\$ 40,000	\$ 302,256
	Yavapai So	\$ 5,211	\$ 40,000	\$ 45,211
Yuma	\$ 133,552	\$ 100,000	\$ 233,552	
2013 Total	\$ 6,889,834	\$ 2,175,000	\$ 9,064,834	
Totals	\$ 37,465,361	\$ 8,592,651	\$ 45,870,687	

PII Implementation

Arizona 9-1-1 GIS Standards Compliant By County



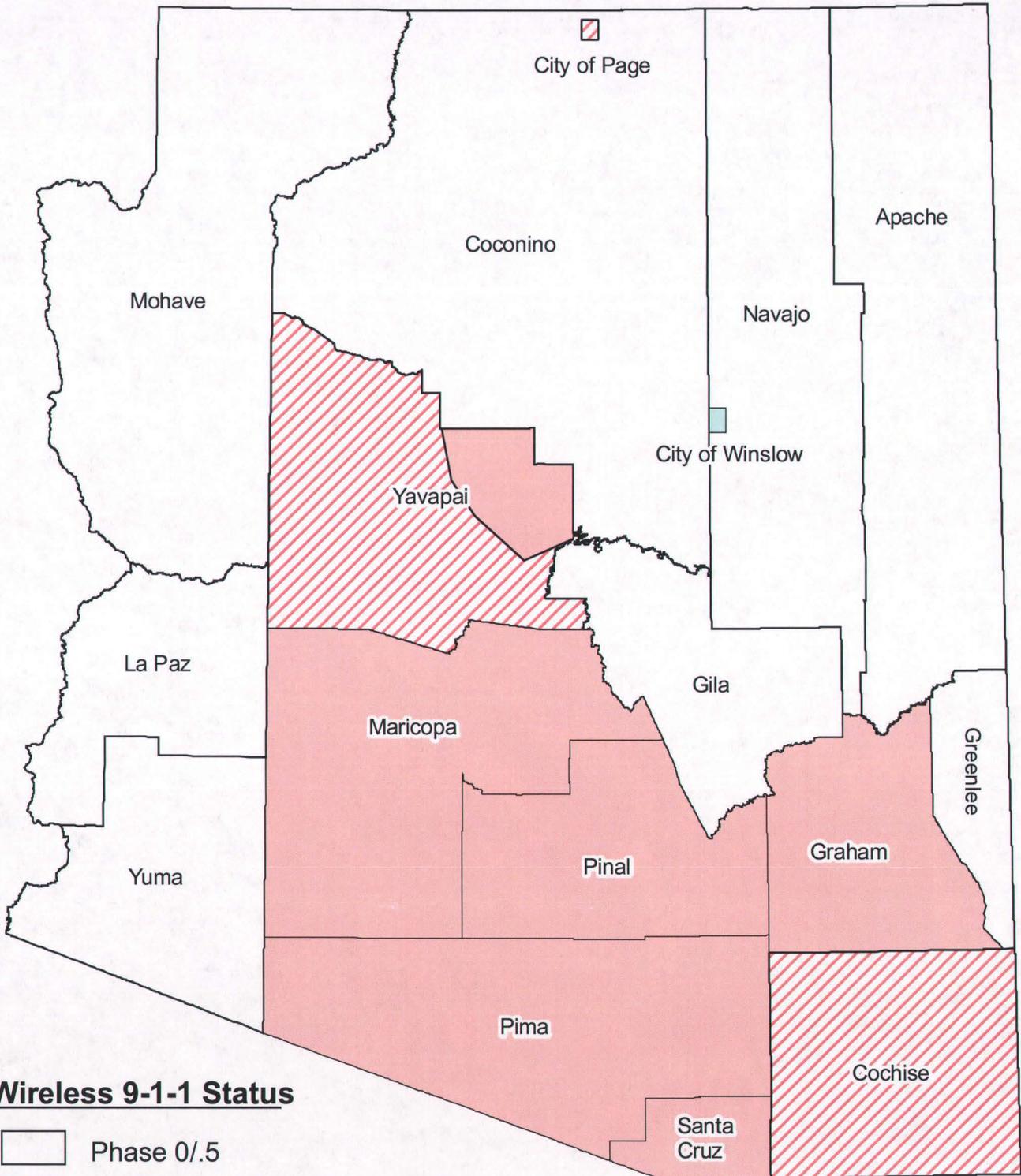
Status

-  Standards Compliant
-  Mid/Late 2008
-  End 2008/Early 2009
-  2009 Project

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Arizona Wireless 9-1-1 Status

By County



Wireless 9-1-1 Status

-  Phase 0/.5
-  Completed Phase I
-  Phase II Project
-  Completed Phase II

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State Fees and Organizational Structure

STATE	Wireline Fee	Structure	Wireless Fee	Structure
Alabama	5% of basic tariff rate, not to exceed \$2.00.	Local	\$0.70	State fee/Oversight&Local
Alaska	\$.50 to \$.75	Local	Up to \$2.00	Local
Arizona	Wireline/VoIP - \$.020	StateFee/Oversight&Local	\$0.20	State Fee/Oversight&Local
Arkansas	5% or 12% of tariff rate	Local	\$0.40	State Fee/Oversight&Local
California	.5% of Intrastate toll	StateFee/Oversight&Local	.5% of Intrastate toll	State Fee/Oversight&Local
Colorado	Up to \$.70	Local	Up to \$.70	Local
Connecticut	Wireline/VoIP - \$.040	State Program	\$0.40	State Program
Delaware	\$0.60	StateFee/Oversight&Local	\$0.60	State Fee/Oversight&Local
District of Columbia	\$.62 to \$.76	Local	\$.62 to \$.76	Local
Florida	Wireline/VoIP - Up to \$0.50	Local	\$0.50	State Fee/Oversight&Local
Georgia	Wireline/Voip - Up to \$1.50	Local	Up to \$1.50	Local
Hawaii	\$0.27	Local	\$0.66	State Fee/Oversight&Local
Idaho	Up to \$1.00	Local	Up to \$1.00	Local
Illinois	\$.30 up to \$5.00	Local	Up to \$.73	State Fee/Oversight&Local
Indiana	3% to 10% of monthly access charge. Statute does note define what makes up local telephone access charge	Local/County Level	\$0.50 to \$1.00	State Fee/Oversight
Iowa	Wireline/VoIP - Up to \$1.00 plus another \$1.00 for 24 months	Local	\$0.65	State Fee/Oversight&Local
Kansas	Up to \$.75	Local	\$0.50	State Fee/Oversight&Local
Kentucky	Up to \$4.50	Local	\$0.70	State Fee/Oversight&Local
Louisiana	Wireline/VoIP - 5% of tariff rates	Local	\$0.85	Local
Maine	Wireline/VoIP - \$0.30	State Program	\$0.30	State Program
Maryland	Wireline/VoIP - \$1.00	State Fee/Oversight&Local	\$1.00	State Fee/Oversight&Local
Massachusetts	\$0.75	State Program	\$0.30	State Program
Michigan	\$0 to \$4.00	Local	\$0.29	State Fee/Oversight&Local
Minnesota	Wireline/VoIP - \$0.65	State Fee/Oversight&Local	\$0.65	State Fee/Oversight&Local
Mississippi	\$0.85 - \$2.05	Local	\$1.00	Local
Missouri	15% of tariff rate or \$.75	Local	none	NA
Montana	Wireline/VoIP \$1.00	State Fee/Oversight&Local	\$1.00	State Fee/Oversight&Local
Nebraska	\$0.50 or higher based on conditions	Local	\$0.50 - \$0.70	State Fee/Oversight&Local
Nevada	\$.25 or tax base	Local	\$.25 or tax base to \$.75	Local
New Hampshire	\$0.25	State Program	\$0.25	State Program
New Jersey	Wireline/VoIP - \$0.90	State Program	\$0.90	State Program
New Mexico	\$0.51	State Program	\$0.51	State Program
New York	\$0.35 or \$1.00	Local	\$0.35 and \$1.25	State Fee/Oversight&Local
North Carolina	\$0.70	State Oversight	\$0.70	State Fee/Oversight&Local
North Dakota	\$1.00	Local	\$1.00	Local
Ohio	Property tax and/or fee up to \$.50	Local	\$0.32	Local
Oklahoma	Wireline/VoIP - Varies up to 15% of tariff rates	Local	\$1.50	Local
Oregon	Wireline/VoIP - \$0.75	State Fee/Oversight&Local	\$0.75	State Fee/Oversight&Local
Pennsylvania	\$1.00 to \$1.50	Local	\$1.00	State Fee/Oversight&Local
Rhode Island	Wireline/VoIP - \$0.47	State Program	\$0.47	State Program
South Carolina	\$.50 to \$1.50	Local	\$0.58	State Fee/Oversight&Local
South Dakota	\$0.75	Local	\$0.75	Local
Tennessee	Wireline/VoIP - Up to \$1.50 on resid. & Up to \$3.00 for bus.	State Fee/Oversight&Local	Up to \$3.00 but set at \$1.00	State Fee/Oversight&Local
Texas	Wireline/VoIP - \$.50 plus it varies by HRC & ECD	Combination	\$0.50	Combination
Utah	\$.65 local fee plus \$.13 state fee	Local	\$.65 local fee plus \$.13 state fee	State Fee/Oversight&Local
Vermont	Universal Service Fund (USF)	State Program	none	State Program
Virginia	Wireline/VoIP - \$0.75	State Fee/Local	\$0.75	State Fee/Oversight&Local
Washington	\$.20 & \$.50	State Fee/Oversight&Local	\$.20 & \$.50	State Fee/Oversight&Local
West Virginia	Varies	Local	\$3.00	Local
Wisconsin	Varies	Local	\$0.43	State Fee/Oversight&Local
Wyoming	\$0.75	Local	\$0.75	Local

Key to Classifications:

Local - This is a local program from fee imposition, collections, 911 service implementation, contracting, etc.

State Program - This is a state program from the fee imposition, collections, 911 service implementation, contracting, etc.

State Fee/Oversight&Local - This is a program where the state law authorizes the fees, and remittance is to the state who has oversight authority via plan approval, standard/rule setting, and fund authorizations. Local government are responsible for the implementation, contract, etc. In wireless, this means there is a wireless board or the state agency has funding oversight.

State of Arizona

9-1-1

**Phase II Wireless
Implementation
Plan**

**Updated 9/1/08
Version 4**

**STATE OF ARIZONA
DEPARTMENT OF ADMINISTRATION
STATE 9-1-1 OFFICE**

**Phase II Wireless
Implementation Plan**

State of Arizona

**Phase I & II Wireless
Implementation Plan**

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Attachment A – “Standard” Phase I Service Agreement
Senate Bill 800 & AZ Revised Statute 12-713

Attachment B – Current Fiscal Year Wireless Budget

Attachment C – Deployment Schedule

Attachment D – Arizona GIS Standards

Phase II Wireless Implementation Plan

A. AUTHORITY

The Federal Communications Commission (FCC) began to explore the possibilities of extending Enhanced 9-1-1 (E9-1-1) service to wireless communications systems with FCC Docket No. 94-102. In a Report and Order issued on July 26, 1996 (FCC 96-264), the FCC ordered that the development and implementation of E9-1-1 service for wireless communications systems be accomplished in two phases.

Phase I of the requirement specifies that wireless E9-1-1 calls provide Automatic Number Identification (ANI) and the location of the base station or cell site receiving the call. Phase II requires that covered carriers have the capability to identify the latitude and longitude of a mobile unit making the 9-1-1 call, within a radius of no more than 125 meters in 67 percent of all cases. Wireless carriers were to be ready to deliver Phase II calls by October of 2001. However, an extension has been given to the carriers until December 2005. To date, there are still a handful of rural carriers that have requested an extension to their original waivers.

The criteria for deployment of Phase II will be the readiness of the county, as well as, the availability of 9-1-1 funds.

The covered carriers are to deliver enhanced wireless service within six months of receipt of a "Request for Service" letter from the Public Safety community, or their representative.

In response to the FCC Report and Order, in 2001 the State of Arizona passed legislation (House Bill 2625) to develop parity between the wire line and wireless excise tax and set a rate of \$.37 per month per access/service line, and to include cost recovery for carrier services.

Effective July 1, 2008, the tax was reduced again to \$.20. Our updated budget projections indicate a deficit will occur in FY11.

Arizona's Administrative Code (Section R2-1-409) defines what costs, subject to available monies, shall be reimbursed.

Phase II Wireless Implementation Plan

B. HISTORY OF WIRE LINE & WIRELESS 9-1-1 IN ARIZONA

Wire Line E9-1-1

History

1975 – Arizona’s first 9-1-1 system was installed in the City of Sierra Vista. Safford and Sedona followed shortly thereafter.

January, 1985 – The City of Tucson was the first Arizona city to implement Enhanced 9-1-1 service.

July 1985 - The Arizona State Legislature adopts the Emergency Telecommunications Services Revolving Fund. The fund was established for on-going implementation of emergency 9-1-1 systems throughout the state.

Surcharge

2001 – House Bill 2625 develops parity between wire line and wireless, and the excise tax is increased to \$.37 per month.

Coverage

September 2003 –100% of the state has 9-1-1 access, and 96% of telephone service is served by Enhanced 9-1-1.

Wireless E9-1-1

History

July 1996 - In a Report and Order issued on July 26, 1996 (FCC 96-264), the FCC ordered that the development and implementation of E9-1-1 service for wireless communications systems be accomplished in two phases and carriers are entitled to full cost recovery for delivering the E9-1-1 call. The covered carriers were to deliver Phase I calls within six months of receipt of a “Request for Service” letter from the Public Safety community, or their representative. Covered carriers were to be ready to deliver Phase II calls by October of 2001.

1998 – Arizona’s first Phase I Wireless project is kicked off in Pima County.

1999 – Verizon Wireless is the first Phase I compliant wireless service provider in Pima County.

Phase II Wireless Implementation Plan

2000 – As recommended by the FCC in their 1996 ruling, the State of Arizona passed legislation allowing the wireless carriers full cost recovery. Within a week of that legislation being placed into law, the FCC reversed their cost recovery decision. They wrote, “disputes about the meaning of the cost recovery mechanism have become a significant impediment to implementation of Phase I”. The agency therefore determined to “delete from the E911 rules the condition that requires a cost recovery mechanism for carriers to be in place before a wireless carrier is obligated to implement E911”.

2002 – Pima County’s Phase I project is completed with 8 wireless carriers providing Phase I service.

August 2002 – The State’s 9-1-1 Office begins a project to deploy Phase I wireless statewide.

2003 – Pinal County completed implementation of Phase I service with 8 wireless service providers.

2003 - Graham County completed implementation of Phase I service with 2 wireless service providers.

2004 – Santa Cruz County completed implementation of Phase I service with 7 wireless service providers.

2005 – The City of Page, E9-1-1 system and the City of Winslow, E9-1-1 system completed implementation of Phase I service.

February 2005 – Pima County completed implementation of Phase II with the exception of Tier III provider, Comnet.

September 2005 – Maricopa completed implementation of Phase II with exception of Tier III provider, Comnet.

October 2005 – GIS work underway for compliance in Graham, Pinal and Santa Cruz counties for deployment of Phase II

April 2006 – Northern Yavapai County completed implementation of Phase II. This area consists of the Sedona, Camp Verde and Cottonwood and surrounding Yavapai County.

April 2007 – Santa Cruz County completed implementation of Phase II.

June 2007 – Graham County completed implementation of Phase II

Phase II Wireless Implementation Plan

October 2007 – Pinal County completed implementation of Phase II

April 2008 – Gila River Indian Community completed implementation of Phase II

Surcharge History

1997 – Senate Bill 1441 adds a \$.10 per month excise tax on wireless service.

2001 – House Bill 2625 develops parity between wire line and wireless, and the excise tax is increased to \$.37 per month.

2006 – Excise tax reduced to \$.28 per month beginning July 1, 2006.

2007 – Excise tax reduced to \$.20 per month beginning July 1, 2008. The Department of Revenue converted the collection methodology to include wire line, wireless and Voice over Internet Protocol (VoIP) based on their interpretation of existing statute.

Coverage

Approximately 85% of the population base is Phase II. During fiscal year 2009, The City of Page, Cochise and Southern Yavapai counties are scheduled for implementation to Phase II.

Phase I -

City of Page
City of Winslow.

Phase II –

Graham County
Santa Cruz County
Maricopa Region includes Apache Junction
Pima County
Pinal County
Northern Yavapai County

Phase II Wireless Implementation Plan

C. CONSIDERATIONS

In order to deliver or Phase II Wireless service to Arizona's public safety community there are a number of issues that need consideration.

Funding

First and foremost, funding must be available to cover the projected costs. Fortunately, with the signing of House Bill 2625 (May 2001), Governor Hull increased the wire line excise tax from 26 cents to 37 cents per access line. That same legislation mandated that wireless service lines should be taxed at the same rate. This increase made strides to ensure that the project would be sufficiently funded.

Within the 2001 legislation, stipulations were also made to reduce the tax basing the conclusion that system Phase II deployment would be completed by FY2008.

The current projections for total statewide deployment will extend the date to FY2013 and implementation is subject to progress being made by local jurisdictions.

Technology Platform

A second consideration is ensuring that, within budget parameters, the most effective and efficient enhanced wireless system is deployed. A key issue is ensuring that all wireless 9-1-1 calls, along with their associated data, can be transferred without delay to other PSAPs in the state. Further, it is necessary that the systems have the ability to transfer the wireless call to another PSAP's wire line and/or wireless 9-1-1 network.

Based on expertise level and customer preference, all counties in the state (with the exception of Maricopa County) will utilize a network solution. That is, the wireless platform will be built around a Local Exchange Carrier's (LEC's) enhanced wireless offering.

Maricopa Region decided to utilize a private switch solution which would better serve their technical and financial needs.

Frontier Communications serves parts of Apache and Navajo County, and all of Mohave County. In order to provide these entities with Phase II service, Frontier is currently in the process of upgrading their platform around CML Selective Routers.

Phase II Wireless Implementation Plan

Phase I versus Phase II

If a county is ready to receive Phase II service – i.e., they have developed an MSAG (Master Street Address Guide) valid GIS (Geographic Information System) file and there are processes in place to keep it current – then Phase II will be deployed if requested by the county (funds permitting). If the county has not completed that task, Phase I will be deployed.

Phase II Wireless Implementation Plan

FCC Mandated Prerequisites

The FCC (Federal Communications Commission) has ruled that a PSAP shall document their ability to receive and utilize the E9-1-1 data being requested. Therefore, the PSAP must meet, and in some cases exceed, the prerequisites set forth.

Deployment Schedule

Deployment can only be achieved through a phased approach. Therefore, the sequence of deployment is also a consideration. The State's 9-1-1 Office has developed a schedule (Section I) which uses greatest need and regional efficiencies as the criteria for deployment. In addition, the agreement, readiness, and cooperation of the individual PSAPs also came into play.

Project Management

The State of Arizona's 9-1-1 Office has resources available to provide project management for Phase I and Phase II projects. Those resources will be made available as defined in the deployment schedule (Section I).

Should a County/9-1-1 jurisdiction choose to manage the project themselves, that is acceptable. The rules and requirements stated in this document still apply.

Should a County/9-1-1 jurisdiction reject the rules and/or requirements stated in this document, the State of Arizona's 9-1-1 Office will not provide project management support. Penalties defined or not defined, fiscal and otherwise, will be borne by the County/9-1-1 jurisdiction.

Phase II Wireless Implementation Plan

D. RULES & PSAP/COUNTY REQUIREMENTS

Although the State's 9-1-1 Office will manage the Phase I and II projects, the public safety community has a role and responsibilities as well. Following are the PSAP/county requirements that will be used to administer the project.

Qualified Applicants

Since Phase I and II technologies require an ALI display, deployment will be offered only to those PSAPs that are fully Enhanced (receiving both ANI and ALI). PSAPs that have Basic or Enhanced with ANI Only service will not qualify for enhanced wireless until they are upgraded to fully Enhanced service with their wire line service.

9-1-1 Wireless Administrator

Each county/wireless 9-1-1 system will identify a person that will serve as their single point of contact. This person will be known as the "9-1-1 Wireless Administrator" and will be responsible to:

- Work with PSAPs within their wireless system, and as necessary with 9-1-1 Wireless Administrators from adjoining counties, to ensure that the wireless needs of all PSAPs are being met.
- Organize and attend related project meetings.
- Drive/make the decisions relevant to the project, including routing and network design.
- Serve as the "single point of contact" to the State's 9-1-1 Office, wireless service providers (WSPs), and other individuals/organizations involved in delivery of Enhanced Wireless service.
- Determine whether service agreements are appropriate; and if so, negotiate contacts.
- Ensure that PSAP personnel are provided the information necessary to handle Phase I and/or Phase II calls.
- Complete a Wireless 9-1-1 Service.
- Continue to manage, on a going forward basis, the relationship with the wireless service providers.

Note: Some of the aforementioned tasks will need input from the respective PSAPs in the county. It will be the 9-1-1 Wireless Administrator's responsibility to work with the PSAPs to ensure decisions are made, and tasks are performed.

Phase II Wireless Implementation Plan

Note: If the 9-1-1 system will not name a 9-1-1 Wireless Administrator, the State's 9-1-1 Office will not provide project management support. If the 9-1-1 system does fill that position, but the person fails to perform the assigned tasks, the 9-1-1 Office will stop project management of that system's enhanced wireless deployment until another person is named and gets engaged in his/her assigned responsibilities. In the event that the 9-1-1 Office does not provide project management support, all responsibilities will fall to the PSAP(s)/9-1-1 system. Additionally, any costs incurred because of non-performance or unreasonably slow performance by the 9-1-1 Wireless Administrator, and/or his representatives, will be the responsibility of the county (versus Arizona's 9-1-1 Fund).

Countywide Deployment

All applicable PSAPs (those that will receive Phase I or Phase II wireless calls) within a given county will work together so that:

- Decisions regarding routing are agreed to by all involved, and
- Implementation of enhanced wireless service can be accomplished at the same time, countywide

To facilitate this, it may be appropriate that the 9-1-1 Wireless Administrator heads a working group represented by all applicable PSAPs.

Network Design Decisions

The 9-1-1 Wireless Administrator will facilitate decisions concerning network design. Each PSAP has options concerning how they want to receive wireless 9-1-1 calls. The options are:

- Receive wireless calls over the existing wire line EM trunks (selective router to PSAP) or
- Receive wireless calls over a new set of EM trunks (selective router to PSAP) dedicated to wireless.

Additionally, depending on the 9-1-1 platform being utilized, there may be the necessity to design ALI circuits and/or interoffice circuits.

Routing

The 9-1-1 Wireless Administrator will facilitate decisions concerning routing. There should be collective agreement between all PSAPs in the county regarding:

- Which PSAPs will be a "primary" wireless PSAP, and which will serve as "secondary" wireless PSAP. The choice of primary or secondary does not need to follow suit with the choices made in the wire line environment.
- Which PSAP will receive the call for each cell site and/or each cell face.

Phase II Wireless Implementation Plan

Phase I/II Service Agreements

Each 9-1-1 Wireless Administrator will be responsible to work with the appropriate people within their county to determine whether they wish to pursue service agreements with the WSPs. If they do, the responsibility of presenting, negotiating, and finalizing those agreements are the total responsibility of the 9-1-1 Wireless Administrator. The 9-1-1 Office will serve as a resource; however, will not manage nor negotiate the contracts.

The 9-1-1 Office has worked with Pinal County's legal division to develop a "standard" Phase I agreement (Attachment A). If desired, this agreement can be used by the County to negotiate service.

Indemnity protection has been provided to the PSAPs under federal and state legislation. Senate Bill 800 and Arizona Revised Statute 12-713 is provided, in part, in Attachment A.

Non-Disclosure Agreements (NDA)

As with the service agreement, the 9-1-1 Office will not manage nor negotiate a NDA on behalf of the county – that will be the responsibility of the 9-1-1 Wireless Administrator.

It should be noted that if the county decides to pursue a service agreement and uses the "standard" agreement in Attachment A, there is non-disclosure language included in that agreement.

Payment Responsibility

Each 9-1-1 system and/or county will be responsible to receive and process bills with the State of Arizona's 9-1-1 Office in the same manner as they manage their wire line 9-1-1 service.

Wireless Service Plan

Arizona's Administrative Code states that a service plan shall be submitted as part of the County/9-1-1 jurisdiction application for funds. This process holds true for both wire line and wireless funding. The wireless service plan should be started prior to the Request for Service Letter being sent and should continue to be developed (as information becomes available) throughout the project. Completion of the plan should coincide with the completion of the project.

Phase II Wireless Implementation Plan

Equipment Requirements

In order for a PSAP to qualify for Phase I or Phase II service, that communications center must ensure that:

- Their PSAP equipment is capable of receiving Phase I ALI fields. (If on the Qwest platform ALI formats - 30B, 30C, 30D and 30W meet the requirements.)
- Their PSAP equipment is capable of receiving 10-digit ANI.
- Their PSAP equipment is equipped to receive new EM trunks, if new EM trunks are requested.
- A GIS (Graphic Information System) file and mapping equipment is in place if requesting Phase II service.

Meeting FCC Mandated Prerequisites

The FCC has established rules that must be met and documented by the PSAP prior to the agency requesting Phase I or Phase II service. Those three rules, and Arizona's requirements relevant to those rules, follow:

Rule #1 - Funding Mechanism

- **FCC Rule:**
A funding mechanism must exist for recovering the PSAP's cost for the facilities and equipment that are necessary to receive and utilize the E9-1-1 data elements being requested.
- **PSAP's Responsibility Regarding Meeting Rule #1**
Phase I & II Wireless Implementations
A) This requirement is met for Phase I & II. The following Arizona Revised Statutes provides the funding mechanism required.
ARS §41 Emergency Telecommunications Services; Administration;
Revolving Fund 41-704, B.

Rule #2 - Equipment Requirement

- **FCC Rule:**
The PSAP has ordered the equipment necessary to fulfill its obligations, and that equipment is already installed or is scheduled to be installed and operable by the end of the six-month period (e.g., provide a list of facilities and copies of relevant purchase orders, with purchase orders demonstrating commitment to vendor performance within six month period or other substantiation of vendor commitment to perform within six month period).

Phase II Wireless Implementation Plan

- **PSAP's Responsibility Regarding Meeting Rule #2**

Phase I & II Wireless Implementations

A) This implementation plan requires that a PSAP be fully Enhanced in the wire line environment (i.e., the PSAP receives both ANI and ALI) before the State's 9-1-1 Fund will reimburse for Phase I or II costs. Therefore, a fully Enhanced PSAP automatically meets this requirement since the call center is already provisioned with the necessary equipment, as well as, ALI circuits and data stream to receive Phase I features.

Phase II Wireless Implementations

A) In order to meet this requirement certain equipment and features (which are not necessary for wire line E9-1-1 or Phase I Wireless) must be provisioned. Specifically, a data stream that will allow the delivery of the X and Y coordinates (for PSAPs served by Qwest's 9-1-1 service, this is the 30W ALI data stream). Plus, mapping equipment to capture and pinpoint the X/Y coordinates (a.k.a. latitude and longitude).

B) There is a widely accepted interpretation regarding meeting this rule. Some reason that the PSAP needs to be able to receive the X and Y coordinates; but that the PSAP does not need electronic/digital equipment to receive and pinpoint the coordinates. It is argued that tools such as paper maps or manually accessed web sites can serve as the equipment. The State of Arizona's 9-1-1 Office, and this plan, does not totally accept this interpretation. Rather, Arizona's criteria are as follows:

- 1) All call centers that serve as a Primary PSAP for wireless 9-1-1 calls, must have electronic/digital equipment in place at the time the "Request for Service" letter is sent to the WSP. This equipment can be a component of the PSAP's 9-1-1 equipment, or a component of the CAD (Computer Aided Dispatch).
- 2) In addition, that Primary PSAP must also have the data stream that receives the X and Y coordinates (in Qwest's environment that's 30W) provisioned and working at the time the Request for Service letter is sent.
- 3) Call centers that serve as a Secondary PSAP for wireless 9-1-1 calls, are not required to have equipment in place before the request letter is sent. However, that PSAP must be in the planning/implementation stage of provisioning electronic/digital mapping equipment – with turn-up set two months prior to the end of the WSP's 6-month window. (In other words, the target date for turn-up of this equipment should be no more than 4 months from the date of the request letter.)
- 4) The same conditions that are outlined for mapping equipment in a Secondary PSAP (above in section 3) apply to the implementation of the X and Y coordinates.

Phase II Wireless Implementation Plan

C) It is very important to note that if the Secondary PSAP(s) can not receive the X/Y coordinates or have their mapping equipment completely installed and operational 6 months from the date of the request letter, there will be financial penalties. From the date that the 6 month installation period ends, until the date that all Secondary PSAPs have fully met the equipment and data stream requirements, the State's 9-1-1 Fund will not reimburse the Qwest Communications' or Wireless Service Providers' monthly costs associated with Phase II. These amounts are substantial and will fall to the County/9-1-1 jurisdiction to pay. Additionally, should the WSPs or FCC assign financial penalties because the 9-1-1 system is not ready, these cost will also fall to the County/9-1-1 jurisdiction.

Phase II Wireless Implementations

A) Two necessary and critical equipment components of Phase I and II service are the selective router and ALI database. When a PSAP chooses to utilize an existing 9-1-1 platform, such as provided by Qwest Communications, those components are in place and operational and need no consideration. Should, however, a PSAP/jurisdiction determine that it is in their best interest to provision and/or own their own 9-1-1 platform then these components must be considered. Specifically, the selective router should be installed and accepted by the customer before the Request for Service letter is sent, with the ALI database ready to accept records at that time.

B) If the timeline defined above is not adhered to, and the PSAP(s)/jurisdiction are not ready to accept service when the wireless service provider(s) are ready to deliver it, there will be financial penalties. Specifically, from the date that the 6 month installation period ends, until the date that the selective router is fully operational (including all associated network components) and the ALI database is loaded and operational, the State's 9-1-1 Fund will not reimburse the Qwest Communications', Wireless Service Providers, or other related vendors the monthly costs associated with the service. These amounts are substantial and will fall to the County/9-1-1 jurisdiction to pay. Additionally, should the WSPs or FCC assign financial penalties because the 9-1-1 system is not ready, these cost will also fall to the County/9-1-1 jurisdiction.

Phase II Wireless Implementation Plan

Documentation of Meeting Equipment Requirements

A) Because the wireless service providers request documentation relevant to the PSAP's status, the 9-1-1 Wireless Administrator must compile information (per PSAP) relevant to their mapping equipment, ALI data stream, and (where appropriate) selective router status. (A form will be provided by the State's 9-1-1 Office to meet this need.)

Rule #3 – LEC Trunking

- **FCC Rule:**

The PSAP has made a timely request to the proper LEC for the facilities and any facility related equipment necessary to receive and utilize Phase I and II data elements (e.g., letter of request and any pertinent correspondence between the PSAP and the LEC).

- **PSAP's Responsibility Regarding Meeting Rule #3**

Phase I & II Wireless Implementations

A) Relevant to the Qwest 9-1-1 platform, the only network facility that might apply is the addition and/or rearrangement of EM trunks (trunks between the selective router and the PSAP). These trunks must be ordered shortly before, or after, the Request for Service letter, with turn-up targeted in the middle of the six-month implementation period. It may also be necessary to order trunk interface cards if the PSAP is increasing their total number of EM trunks.

B) Relevant to a 9-1-1 platform where the networking (i.e., ALI circuits and interoffice facilities) is not already in place, those facilities must be ordered 30 days prior to the Request for Service Letter is sent with an installation date set for 4 months prior to the six-month end date.

Additonal State of AZ Phase II Requirements

- A) A GIS file that meets all requirements set forth in Arizona Standards (Attachment D)
- B) A GIS file that is complete for all areas served by Phase II
- C) A process in place to maintain and distribute updates to GIS
- D) An approved Wireless 9-1-1 Service Plan
- E) Sufficient funds in the State's 9-1-1 Fund to cover Phase II costs

To facilitate this, it may be appropriate that the 9-1-1 Wireless Administrator heads a working group represented by all applicable PSAPs.

Phase II Wireless Implementation Plan

E. NETWORK DESIGN

Non-Call Path Associated Signaling

The network technology that will be utilized to deliver the Phase I wireless calls in Arizona will be a form of the Non-Call-Path Associated Signaling (NCAS) solution (the specific solution will be the call of the WSP). Arizona's PSAPs are not provisioned to receive a CAS (Call-Path Associated Signaling).

Wireless Service Providers Network

The wireless service providers will have the option of connecting to the selective router with Signaling System Seven (SS7) or with CAMA Enhanced MF trunks. They will also be free to elect the Service Control Point (SCP) vendor and database vendor of their choice.

Routing

Routing for Phase I wireless calls will be determined by the location of the tower receiving the E9-1-1 call. The call will be routed to a pre-determined PSAP based on location of the tower within an E9-1-1 area. In cases where the tower is in close proximity to two or more E9-1-1 service areas; and the tower has a three-sector antenna; and if a majority of one of the sectors lies in a different E9-1-1 service area, routing can be done based on tower sectors.

Routing Phase II will be determined by the location of the wireless caller. A CRDB (Co-ordinate Routing Database) is part of the Phase II network configuration and will facilitate routing.

It will be responsibility of the public safety community to work with the carrier to designate the appropriate routing and response boundaries.

EM Trunks (a.k.a. 9-1-1 Trunks)

The trunks delivering calls from the selective router to the PSAP are known as EM trunks. Each PSAP has a trunk group of two or more trunks for their wire line E9-1-1 calls. Each PSAP that will receive Phase I or Phase II calls will be given the option to utilize the existing EM trunk group for wireless calls (in addition to the existing wire line calls), or to install a new set of EM trunks that will be used only for wireless call delivery.

With the assistance of Qwest, the provider of those trunks, the PSAP will also determine the appropriate size of those trunk groups.

Phase II Wireless Implementation Plan

F. DEPLOYMENT SCHEDULE

The deployment schedule, is updated annually using (1) greatest needs (2) regional efficiencies and (3) PSAP agreement, readiness and cooperation as the criteria. Available funding is also ensured.

The most recent schedule was included with the April 2007 report and has been reviewed and included in this report.

Deployment is only scheduled for those areas currently, or soon to be, provisioned with Enhanced 9-1-1 service. As other 9-1-1 systems become Enhanced, they will be added to the schedule.

Phase II Wireless Implementation Plan

G. GLOSSARY

Following is a listing of relevant definitions and abbreviations that are contained in this plan.

Access Line - means the telephone service line which connects a subscriber's main telephone(s) or equivalent main telephone(s) to the telephone company's switching office.

Automatic Location Identification (ALI) - means a system capability that enables an automatic display of information defining a geographical location of the telephone used to place the 9-1-1 call.

Automatic Number Identification (ANI) - means a capability that enables the automatic display of the number of the telephone used to place the 9-1-1 call.

Call Attendant - means the person who initially answers a 9-1-1 call.

Call Transfer - means the call attendant determines the appropriate responding agency and transfers the 9-1-1 caller to that agency.

Central Office (CO) - means a telephone company facility that houses the switching and trunking equipment serving telephones in a defined area.

Centralized Automated Message Accounting (CAMA) - An MF signaling protocol originally designed for billing purposes, capable of transmitting a single telephone number.

Customer Premises Equipment (CPE) - Terminal equipment at a PSAP.

Emergency Call - means a telephone request for service which requires immediate action to prevent loss of life, reduce bodily injury, prevent or reduce loss of property and respond to other emergency situations determined by local policy.

Emergency Service Number (ESN) - A three to five digit number representing a unique combination of emergency service agencies designated to serve a specific range of addresses within a particular geographical area. The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper services.

Enhanced 9-1-1 (E9-1-1) - means the general term referring to emergency telephone systems with specific electronically controlled features, such as ALI, ANI, and selective routing.

Phase II Wireless Implementation Plan

Exchange - means a defined geographic area served by one or more central offices in which the telephone company furnishes services.

Feature Group D (FGD) - An MF signaling protocol, originally developed to support equal access to long distance services, capable of carrying one or two ten digit telephone numbers.

Implementation - means the activity between the formal product/delivery agreement reached by the PSAPs and the carriers, and commencement of operations.

Integrated Services Digital Network (ISDN) - A digital interface providing multiple channels for simultaneous functions between the network and CPE.

Mobile Directory Number (MDN) - The callback number associated with a wireless phone.

Mobile Switching Center (MSC) - The wireless equivalent of a Central Office, which provides switching functions from wireless calls.

Multi-Frequency (MF) - A type of signaling used on analog interoffice and 9-1-1 trunks.

Local Exchange Carrier (LEC) - A telecommunications carrier under the state/local Public Utilities Act that provide local exchange telecommunications services.

9-1-1 Call - means any telephone call that is made by dialing the digits 9-1-1.

9-1-1 System - means a telephone system that automatically connects a caller, dialing the digits 9-1-1, to a PSAP.

Nonrecurring Costs - means one-time charges incurred by a joint E9-1-1 service board or operating authority including, but not limited to, expenditures for E9-1-1 service plan preparation, surcharge referendum, capital outlay, installation, and initial license to use subscriber names, addresses and telephone information.

One-Button Transfer - means another term for a (fixed) transfer which allows the call attendant to transfer an incoming call by pressing a single button. For example, one button would transfer voice and data to a fire agency, and another button would be used for police, also known as "selective transfer."

Phase I, Wireless 9-1-1 Service - means an emergency wireless telephone system with specific electronically controlled features such as ANI, specific indication of wireless communications tower site location, selective routing by geographic location of the tower site.

Phase II Wireless Implementation Plan

Phase II, Wireless 9-1-1 Service - means an emergency wireless telephone system with specific electronically controlled features such as ANI and ALI and selective routing by geographic location of the 9-1-1 caller.

Political Subdivision - means a geographic or territorial division of the state that would have the following characteristics: defined geographic area, responsibilities for certain functions of local government, public elections and public officers, and taxing power. Excluded from this definition are departments and divisions of state government and agencies of the federal government.

Provider - means a person, company or other business that provides, or offers to provide, 9-1-1 equipment, installation, maintenance, or access services.

Pseudo Automatic Location Identification (pALI) - An ALI record associated with a pANI, configured to provide the location of the wireless cell of sector and information about its coverage or serving area.

Pseudo Automatic Number Identification (pANI) - A telephone number used to support routing of wireless 9-1-1 calls. It may identify a wireless cell, cell sector of PSAP to which the call should be routed.

Public or Private Safety Agency - means a unit of state or local government, a special purpose district, or a private firm, which provides or has the authority to provide firefighting, police, ambulance, or emergency medical services.

Public Safety Answering Point (PSAP) - means a 24-hour, state, local, or contracted communications facility, which has been designated by the local service board to receive 9-1-1 service calls and dispatch emergency response services in accordance with the E9-1-1 service plan.

Public Switched Telephone Network - means a complex of diversified channels and equipment that automatically routes communications between the calling person and called person or data equipment.

Recurring Costs - means repetitive charges incurred by a joint E9-1-1 service board or operating authority including, but not limited to, database management, lease of access lines, lease of equipment, network access fees, and applicable maintenance costs.

Selective Routing (SR) - means an enhanced 9-1-1 system feature that enables all 9-1-1 calls originating from within a defined geographical region to be answered at a pre-designated PSAP.

Phase II Wireless Implementation Plan

Service Control Point (SCP) – means a centralized database system used for, among other things, wireless E9-1-1 service applications. It specifies the routing of 9-1-1 calls from the cell site to the PSAP and includes all relevant cell site location information.

Signaling System 7 (SS7) - An inter-office signaling network separate from the voice path network, utilizing high-speed data transmission to accomplish call processing.

Subscriber - means any person, firm, association, corporation, agencies of federal, state and local government, or other legal entity responsible by law for payment for communication service from the telephone utility.

Tariff - means a document filed by a telephone company with the state telephone utility regulatory commission that lists the communication services offered by the company and gives a schedule for rates and charges.

Telecommunications Device for the Deaf (TDD) - means any type of instrument, such as a typewriter keyboard connected to the caller's telephone and involving special equipment at the PSAP which allows an emergency call to be made without speaking, also known as a TTY.

Trunk - means a circuit used for connecting a subscriber to the public switched telephone network.

Wireless Communications Service - means cellular, broadband PCS, and SMR that provide real-time two-way interconnected voice service, the networks of which utilize intelligent switching capability and offer seamless handoff to customers. This definition includes facilities-based service providers and non-facilities based resellers. For purposes of wireless 9-1-1 surcharge, wireless communications service does not include services whose customers do not have access to 9-1-1, or a 9-1-1-like service, a communications channel utilized only for data transmission, or a private telecommunications system.

Wireless Communications Surcharge - means a surcharge imposed on each wireless communications service number provided in this state and collected as part of a wireless communications service provider's monthly billing to a subscriber.

Wireless Service Provider (WSP) – a communications carrier who provides wireless service.

State of Arizona 9-1-1



GIS Standards

Updated 9-15-2008

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Arizona 9-1-1 GIS Standards

Document Description and Purpose

This document contains the State of Arizona's 9-1-1 Geographic Information System (GIS) standards. These standards were developed for two reasons; 1) to ensure a high level of accuracy for State funded mapped ALI systems and 2) to assist each 9-1-1 system with their GIS/mapped ALI endeavors.

The State of Arizona Phase I & II Wireless Implementation Plan states:

If a county is ready to receive Phase II service – i.e., they have developed an MSAG and valid GIS file and there are processes in place to keep it current – then Phase II will be deployed if requested by the county (funds permitting).

The purpose of this document is to define a "valid GIS file". This document also contains GIS requirements for 9-1-1 systems that plan to upgrade to mapped ALI (i.e., mapping on wire line calls).

NOTE: 9-1-1 Systems that were installed prior to these standards being put in place must still adhere to the GIS requirements listed below. Their GIS data will be evaluated and deadlines will be set for making modifications.

These standards have been developed during a period when no national standards are in place. Should national standards be developed and approved, Arizona's 9-1-1 Office will evaluate those standards and make modifications to AZ's standards, as deemed appropriate.

GIS Data Requirements

In order to have an effective, fully operational Mapped ALI/Dispatch mapping software program, three GIS data layers are required for use with the mapped ALI software. These data layers include the street centerlines, Emergency Service Number (ESN)/Emergency Service Zone (ESZ) boundaries, and community boundaries. There are also certain data layer attributes that are required for these data layers to be effective. The required data attributes for these GIS data layers are listed below. In addition, the *NENA GIS Data Model* can be found in APPENDIX A. This model may be helpful to agencies that are modifying or creating new GIS layers for use in 9-1-1 and/or public safety.

Arizona 9-1-1 GIS Standards

Required GIS Data Layers

Mapped ALI software requires three GIS data layers to function properly. The three layers are street centerlines, ESN/ESZ boundaries, and community boundaries. The specific field requirements for these layers are outlined below.

Street Centerline

1. Must include the following fields (see APPENDIX A for field names, types and lengths required for data sharing):
 - a. Prefix Directional
 - b. Street Name
 - c. Street Type
 - d. Suffix Directional
 - e. Left From Address
 - f. Left To Address
 - g. Right From Address
 - h. Right To Address
 - i. Left MSAG Community
 - j. Right MSAG Community
 - k. One way
 - l. Alias Street Name
 - m. Source of Update
 - n. Date of Update

ESN/ESZ Boundaries

1. Must include the following fields (see APPENDIX B for field names, types, and lengths):
 - a. ESN
 - b. PSAP Name
 - c. Fire
 - d. Medical
 - e. Law

Community Boundaries

1. Must include the following fields (see APPENDIX B for field names, types, and lengths):
 - a. Community Name

Arizona 9-1-1 GIS Standards

Other Useful GIS Layers (not required)

- Address Points: point locations of all addressable sites/structures
- Parcel Boundaries: map layer of property parcel boundaries
- Hydrology: lines and polygons depicting water ways
- Railroads: lines depicting railroads
- Fire Hydrants: point locations of fire hydrants
- Mile Markers: point locations of mile markers
- Township/Range Boundaries: map layer of township and range boundaries
- Emergency Buildings: point locations of emergency buildings
- Cell Towers: point locations of cell towers
- Cell Coverages: pie-shaped polygons depicting cell coverage areas
- Common Places: point locations of well known structures and/or areas
- Parks/Cemeteries: polygons representing park and cemetery locations

Metadata

Every 9-1-1 System will eventually exchange GIS data with surrounding 9-1-1 Systems. For this reason, it is necessary for agencies to maintain metadata for each GIS data layer used in the mapped ALI systems.

Metadata, as defined by ESRI:

Information about the content, quality, condition, and other characteristics of data. Metadata for geographic data may document its subject matter; how, when, where, and by whom the data was collected; accuracy of the data; availability and distribution information; its projection, scale, resolution, and accuracy; and its reliability with regard to some standard.

A sample GIS metadata form can be found in APPENDIX C. The State of Arizona requires that the following information be included in your GIS metadata:

- Publication Data (Author and Date): see metadata under *Identification Information*
- Map Projection: see metadata under *Spatial Reference Information*
- Spatial Accuracy: see metadata under *Data Quality Information*
- Contact Information: see metadata under *Identification Information*

***Please contact the State's 9-1-1 GIS Coordinator with any metadata related questions.

Arizona 9-1-1 GIS Standards

Special Situations – Native American Communities

In order to preserve anonymity amongst its community members, Native American communities may develop their own unique numbering system in place of a typical postal addressing scheme. The details of their unique numbering system must be included in their 9-1-1 Service Plan. The State 9-1-1 GIS Coordinator will review the 9-1-1 Service Plans on a case-by-case basis in order to allocate the required map layers. In all cases, the map layers must be capable of automatically locating **at least 95%** of 9-1-1 callers.

Spatial Accuracy Requirements

The advent of FCC Wireless Phase I and II wireless 9-1-1 has elevated the importance of having spatially accurate GIS data. With the implementation of Phase II, the location of the wireless caller is plotted on a digital map based on Latitude and Longitude (XY) coordinates provided to the PSAP via the Automatic Location Information (ALI). These XY coordinates will be determined by one of three technologies: 1) network-based (location determining equipment on each wireless tower), 2) handset-based (GPS receiver on the caller's mobile phone), or 3) combination of the network and handset-based solutions. The FCC has adopted accuracy requirements for the wireless caller's XY. These requirements are listed below in an excerpt from *FCC 01-351, Fifth Report and Order*:

The FCC adopted accuracy and reliability requirements for ALI as part of its rules for wireless carrier enhanced 911 (E911) service in CC Docket No. 94-102, Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems. Those rules were adopted in 1996 and revised in the Third Report and Order in that docket (released October 6, 1999). The revised rules set the following accuracy and reliability requirements for E911 Phase II operations:

- *For network-based solutions: 100 meters for 67 percent of calls, 300 meters for 95 percent of calls;*
- *For handset-based solutions: 50 meters for 67 percent of calls, 150 meters for 95 percent of calls.*

Data Collection

These Arizona GIS standards require that the GIS centerline file be collected at a minimum of 7.6 meters 95% of the time. The scale of vector GIS data must be 1:24,000 or better and the scale of raster GIS data (digital orthoimagery, satellite imagery, etc) must be 1:2400 or better. It is recommended that updates to the centerline file be made with the most spatially accurate data and/or means available.

Arizona 9-1-1 GIS Standards

Map Projection

In a wireless Phase II environment, the wireless 9-1-1 caller's XY coordinates are provided to the PSAP in a WGS 84 datum. Thus, all 9-1-1 GIS map data must utilize projections that display coordinates in a WGS 84 datum.

Attribute Accuracy Requirements

The attribute information must be accurate in order for 9-1-1 calls to locate properly. Below is a list of attribution accuracy requirements:

Street centerlines

- ✓ The ALI database must have **at least a 95% match rate** to the GIS centerline layer
- ✓ Street name elements must be MSAG-valid
- ✓ All street segments must be broken and snapped at street intersections, ESN boundaries, and community boundaries
- ✓ Direction of street segment must follow real-world ranges
- ✓ Ranges may not overlap
- ✓ "To" range must be greater than "From" range on each street segment
- ✓ Street segments must be free of parity errors (i.e. – cannot have both even and odd ranges on the same side of a segment)
- ✓ Left and right ESN information must match boundary files
- ✓ Divided highways, freeways, and streets (divided by median) must be depicted as two line segments

ESN and Community boundaries

- ✓ Must be free of sliver polygons (i.e. – gaps or tiny unwanted polygons)
- ✓ Must be snapped to street segments
- ✓ ESN boundaries must cover the 9-1-1 system's entire response area

Arizona 9-1-1 GIS Standards

Testing Methods

The GIS tests and validations may be performed by the State's 9-1-1 GIS Coordinator or the 9-1-1 System's GIS personnel. Before funding will be approved from the State's 9-1-1 Fund, each 9-1-1 System (city or county jurisdiction) will be required to send complete copies of the following GIS layers to the State 9-1-1 GIS Coordinator for validation. Tests will be run to ensure they meet Arizona's standards.

- Street centerlines
- ESN/ESZ boundaries
- Community boundaries

Data Sharing

All shared 9-1-1 GIS data shall be standardized prior to distribution. Please refer to the *NENA GIS Data Model* (see APPENDIX A) for standard field names, types, and lengths.

Ongoing GIS Maintenance

Maintaining accurate GIS data is as important as acquiring accurate GIS data. Since up-to-date GIS data is required for 9-1-1 mapping, it is imperative that the data be continually updated with new streets, sub-divisions, and annexations. Each 9-1-1 System is responsible for maintaining their GIS data. Below are maintenance requirements that must be met in order to receive State 9-1-1 funds to finance mapped ALI and wireless 9-1-1.

- The 9-1-1 System must identify their GIS department or GIS data maintenance source and MSAG Coordinator prior to installing a mapped ALI system. A GIS maintenance procedure must be submitted to the State's 9-1-1 Administrator or GIS Coordinator.
- Procedures for updating and correcting the GIS data must be developed prior to installing a mapped ALI system. These procedures include:
 - Methods for adding new streets and subdivisions
 - Timeline for adding new street data/annexations
 - Methods for collecting GPS points (if applicable)
 - Methods for adjusting ESN/Community boundaries

Arizona 9-1-1 GIS Standards

- The following people play a key role in maintaining the 9-1-1 GIS data:
 - 9-1-1 dispatchers and call takers
 - MSAG Coordinators
 - GIS personnel
 - Addressing assignment sources such as the Planning and/or Assessors Office
 - Outside contracted data maintenance sources

- To ensure that GIS data is accurately maintained, each 9-1-1 System is required to complete an annual ALI to GIS comparison. This comparison should be performed by the 9-1-1 System's GIS personnel or the State's 9-1-1 GIS Coordinator. Each county is entitled to one free ALI dump per year. 9-1-1 Systems may also perform a GIS to MSAG comparison to assess GIS accuracy.

- **Please contact the State 9-1-1 GIS Coordinator if you ever need GIS assistance.**

APPENDIX A

Arizona 9-1-1 GIS Standards

Street Centerline Field Structure (required for data sharing)

NAME	LABEL	LENGTH	TYPE*	DATA DESCRIPTION
Left Address Low	FROM_ADD_L	10	N	Lowest address on left side of street in ascending order
Left Address High	TO_ADD_L	10	N	Highest address on left side of street in ascending order
Right Address Low	FROM_ADD_R	10	N	Lowest address on right side of street in ascending order
Right Address High	TO_ADD_R	10	N	Highest address on right side of street in ascending order
Prefix Directional	PRE_DIR	2	T	Leading street direction prefix. Valid Entries: N S E W NE NW SE SW
Street Name	STREET_NAME	60	T	Valid service address of the Calling Party Number
Street Suffix	STREET_TYPE	4	T	Valid Street abbreviation, as defined by the US Postal Service: http://www.usps.com/ncsc/lookups/usps_abbreviations.html
Post Directional	POST_DIR	2	T	Trailing street direction suffix. Valid Entries: N S E W NE NW SE SW
Alternate Street Name	ALT_NAME	70	T	Alternate full street name
One way	ONEWAY	1	T	One way road classification. Blank or N = No Y = One way
MSAG Community Name Left	MSAG_COMM_L	35	T	Valid service community name as identified by the Master Street Address Guide on the left side of the street
MSAG Community Name Right	MSAG_COMM_R	35	T	Valid service community name as identified by the Master Street Address Guide on the right side of the street
Source of Data	SOURCE	20	T	Person or agency that last updated the record
Date Updated	DLU	10	N	Date of last update Format: CCYY-MM-DD

*N = Number T=Text

APPENDIX B

From EXHIBIT 22 VERSION 1.0 GIS data model format

22.1 Preface

The *Geographic Information System (GIS) Data Model* identifies a geospatial data standard, but it outlines data layers for GIS data to be exchanged between neighboring public safety agencies or jurisdictions. This standard is for spatial datasets in a GIS environment. GIS utilizes linear style addressing technique for purposes of geocoding. Should an organization use non-linear style addressing such as an alphanumeric grid style system, this standard would not be effective. The primary purpose of this standard is for organizations that utilize a Geographic Information System.

This Standard will identify minimal attributes required in a spatial dataset, and define the structure of said attributes. This standard will help facilitate the development of new map products for use in Public Safety specifically as it pertains to implementing wireless locational technologies.

22.5B. Emergency Service Zone Boundary Layer

<u>NAME</u>	<u>LABEL</u>	<u>MAX # BYTES</u>	<u>TYPE</u>	<u>DATA DESCRIPTION</u>
Community ID	CID	10	N	Unique Community ID Number i.e. FIPS, GEOCODES, etc.
County ID	COI	5	AN	County Identification code (usually the FIPS code). <i>Note: County Identification field is used to identify the county of call origination. The Committee recommends use of the FIPS code assigned to each county by the U.S. Census Bureau</i>
PSAP ID	PSI	4	AN	Code identifying the PSAP associated with the assigned ESN
Agency ID	AID	9	N	Emergency Service Agency ID
ESN	ESN	5	N	Emergency Service Number associated with this House Number, Street Name and Community Name. <i>Note: The Service Provider, providing the E9-1-1 Selective Routing will assign ESN's.</i>
Source of Data	SOD	5	A	Agency that last updated the record
Date Updated	DLU	10	N	Date of last update Format: CCYY-MM-DD

22.5.C Municipal Boundary Layer

<u>NAME</u>	<u>LABEL</u>	<u>MAX # BYTES</u>	<u>TYPE</u>	<u>DATA DESCRIPTION</u>
Community ID	CID	10	N	Unique Community ID Number i.e. FIPS, GEOCODES, etc.
MSAG Community Name	MCN	35	A	Valid service community name as identified by the MSAG
Source of Data	SOD	5	A	Agency that last updated the record
Date Updated	DLU	10	N	Date of last update Format: CCYY-MM-DD

Arizona 9-1-1 GIS Standards

APPENDIX C Sample Metadata Form

ESN Boundaries

Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:

Citation:

Citation Information:

Originator: REQUIRED: The name of an organization or individual that developed the data set.

Publication Date: REQUIRED: The date when the data set is published or otherwise made available for release.

Title:

ESN

Geospatial Data Presentation Form: vector digital data

Online Linkage: \\WSITENA\C\$\Adam\GIS Data\Arizona.mdb

Description:

Abstract:

ESN Boundaries

Purpose:

REQUIRED: A summary of the intentions with which the data set was developed.

Time Period of Content:

Time Period Information:

Single Date/Time:

Calendar Date: 11/16/2004

Currentness Reference:

publication date

Status:

Progress: REQUIRED: The state of the data set.

Maintenance and Update Frequency: REQUIRED: The frequency with which changes and additions are made to the data set after the initial data set is completed.

Spatial Domain:

Bounding Coordinates:

West Bounding Coordinate: -113.334221

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East_Bounding_Coordinate: -110.450439

North_Bounding_Coordinate: 32.511578

South_Bounding_Coordinate: 31.507841

Keywords:

Theme:

Theme_Keyword_Thesaurus: REQUIRED: Reference to a formally registered thesaurus or a similar authoritative source of theme keywords.

Theme_Keyword: REQUIRED: Common-use word or phrase used to describe the subject of the data set.

Access_Constraints: REQUIRED: Restrictions and legal prerequisites for accessing the data set.

Use_Constraints:

REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Adam Iten

Contact_Organization: State of Arizona/9-1-1 Office

Contact_Position: 9-1-1 GIS Coordinator

Contact_Electronic_Mail_Address: adam.iten@ad.state.az.us

Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI

ArcCatalog 9.0.0.535

Data_Quality_Information:

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

<3 meters

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 850

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.000000

Longitude_Resolution: 0.000000

Geographic_Coordinate_Units: Decimal degrees

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Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000

Denominator_of_Flattening_Ratio: 294.978698

Vertical_Coordinate_System_Definition:

Altitude_System_Definition:

Altitude_Resolution: 0.000010

Altitude_Encoding_Method: Explicit elevation coordinate included with horizontal coordinates

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: ESN

Attribute:

Attribute_Label: OBJECTID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: AREA

Attribute:

Attribute_Label: PERIMETER

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: ESN

Attribute:

Attribute_Label: Shape_Length

Attribute_Definition:

Length of feature in internal units.

Attribute_Definition_Source:

Arizona 9-1-1 GIS Standards

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Positive real numbers that are automatically generated.

Attribute:

Attribute_Label: Shape_Area

Attribute_Definition:

Area of feature in internal units squared.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Positive real numbers that are automatically generated.

Distribution_Information:

Resource_Description: Downloadable Data

Metadata_Reference_Information:

Metadata_Date: 20041117

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: REQUIRED: The organization responsible for the metadata information.

Contact_Person: REQUIRED: The person responsible for the metadata information.

Contact_Address:

Address_Type: REQUIRED: The mailing and/or physical address for the organization or individual.

City: REQUIRED: The city of the address.

State_or_Province: REQUIRED: The state or province of the address.

Postal_Code: REQUIRED: The ZIP or other postal code of the address.

Contact_Voice_Telephone: REQUIRED: The telephone number by which individuals can speak to the organization or individual.

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile